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**ENVIRONMENTAL IMPACT ASSESSMENT
REPORT
EPL 7854. ESEGIEL XAMSEB**

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PROJECT DETAILS

TITLE: Environmental Impact Assessment and Environmental Management Plan for the exploration for Base, Rare, industrial Minerals and Precious Metals in EPL 7854 Karibib District, Erongo Region, Namibia.

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EXECUTIVE SUMMARY

Esegiel Xamseb (the “**Proponent**”) holds mineral rights under the Exclusive Prospecting License (EPL) No. 7854. with respect to base and rare metals, industrial minerals, and precious metals minerals groups. The EPL 7854. Was provisionally granted on the 20 July 2021 and pending ECC .

The EPL 7854. covers a total area of 1595.3Ha over the portions of the following commercial farmland: Etiro 50 in the west edge of Karibib (Fig. 1.2). The general local topography comprises central topographic high mountain areas trending in the northeast-southwest / east-west directions with topographic lower areason either side.

The Proponent intends to conduct exploration / prospecting activities starting with desktop studies andaerial surveys, followed by regional field-based reconnaissance work and if the results are positive, implement detailed site-specific field-based activities over key site-specific localities using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling for laboratory tests.

The proposed minerals exploration activities are listed in the Environmental Impact Assessment (EIA) Regulations, 2012 and the Environmental Management Act, 2007, (Act No. 7 of 2007) and cannot be undertaken without an Environmental Clearance Certificate (ECC).

This Environmental Impact Assessment (EIA) report has been prepared by Centre for Geosciences Research (CEGEOR) cc to support the application for ECC. Pubic consultation process was undertaken during the months of September –October 2023. In line with the provisions of the regulations, the public notices were published in the Confidente Newspaper dated 22- 29th September 2025, and New Era Newspaper date 14th -21 September 2023. A stakeholder register was opened on the end of 15th October 2023.

During the public / stakeholder consultation period, three (3) stakeholder registrations and inputs were received. The comments and inputs provided by the stakeholders have been incorporated in this EIA report.

The EPL area falls within the daytime warm to hot temperatures climatic conditions throughout the year,while the nights are mild to cool in winter. The November to April rainfall season is highly variable and may range between 200 - 300 mm per year with a mean annual gross evaporation of about 3300 mm.The general local topography comprises central topographic high mountain areas trending in the northeast-southwest direction with topographic lower areas on either side.

No field-based assessment of fauna and flora has been undertaken. Once a site-specific location has been delineated as a potential exploration target, field-based assessments of the fauna, flora and habitats will be undertaken prior to the implementation of the field-based site-specific exploration activities such as trenching or drilling operations. Overall, it is estimated that at least 75 species of reptile, 7 amphibian, 87 mammal, 217 birds, 74-101 larger trees and shrubs and up to 80 grass species occur in the general/immediate Karibib area of which a high proportion are endemics (e.g. reptiles – 45.3%).

The EPL area falls within the Central Zone of the Damara Sequence which underlies most of Namibia (Miller, 1992). According to Miller, (1992), the oldest rocks within the Central Zone are the pre-Damara basement that consists of gneiss and granite lithologies found in different parts of the zone. According to the Department of Water Affairs, (2001), the EPL 7854 falls within the area with generally low groundwater potential and groundwater in the areas is associated with secondary hydraulic properties such as discontinuities and carbonate solution holes.

Although no archaeological resources have been found within the EPL area, probable existence of archaeological resources (from early Holocene to the last 50 years) may be associated with area.

The impacts that the proposed exploration activities will have on the receiving environment (physical, biological, socioeconomic environments and ecosystem functions, services, use and non-use values or passive uses) will depend on the extent of the proposed activities over the development area, management of the area and how the mitigations as detailed in the EMP report are eventually implemented and monitored by the Proponent to the satisfaction of the landowners and the Government regulators. The overall severity of potential environmental impacts of the proposed project activities on the receiving environment will be of low magnitude, temporally duration, localised extent, and low probability of occurrence.

Based on the findings of this EIA Report, it is hereby recommended that the proposed exploration activities be issued with an Environmental Clearance Certificate (ECC). The Proponent shall take into consideration the following key requirements for implementing the proposed exploration programme:

- (i) The Proponent shall negotiate Access Agreements with the land owner/s as may be applicable.
- (ii) In consultation with the land owners and where possible and if key and core conservation, tourism or archaeological resources areas or protected plant species are identified within the EPL area, such areas shall be excluded from the proposed minerals exploration activities.

- (iii) The Proponent shall adhere to all the provisions of the EMP and conditions of the Access Agreement to be entered between the Proponent and the land owner/s in line with all applicable national regulations.
- (iv) Before entering any private or protected property/ area such as a private farm, the Proponent shall give advance notices and obtain permission from the land owners to always access the EPL area, and.
- (v) Where possible, and if water is found during the detailed exploration boreholes drilling operations, the Proponent shall support other land uses in the area in terms of access to freshwater supply for both human consumption, wildlife and agricultural support as may be requested by the local community / land owner/s. The abstraction of fresh groundwater resources shall include water levels monitoring, sampling, and quality testing on a bi-annual basis, and that the affected landowners must have access to the results of the water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources as may be applicable.

Once and if economic minerals resources are discovered, a separate field-based and site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports shall be prepared as part of the feasibility study with respect to the test mining or possible mining operations. The site-specific EIA and EMP shall cover the area identified to have potential economic minerals resources including the pit area/s, waste rock, access, office blocks and all infrastructure support areas (water, energy, and road / access). In addition to the Terms of Reference (ToR) to be developed during the Environmental Scoping study phase for the test mining / mining stages, the following field-based and site-specific specialist studies shall be considered in the TOR for the EIA and EMP for possible test mining or mining operations in an event of a discovery of economic minerals resources and possible development of a mining project within the EPL No. 7854.:

- (i) Groundwater studies including modelling as may be applicable.
- (ii) Field-based flora and fauna diversity.
- (iii) Dust, noise and sound modelling linked to engineering studies.
- (iv) Socioeconomic assessment, and.
- (v) Others as may be identified / recommended by the stakeholders/ land owners/ Environmental Commissioner or specialists.

1. BACKGROUND

1.1 Introduction

Esegiel Xamseb(the “**Proponent**”) holds mineral rights under the Exclusive Prospecting License (EPL) No. 7854. with respect to base and rare metals, industrial minerals, and precious metals minerals groups. The EPL 7854. was partially granted on the 20 July 2021 and is pending ECC.

Under the EPL 7854., the Proponent is only authorised by the Ministry of Mines and Energy (MME) to conduct prospecting, not mining. Mining is undertaken under a separate authorisation called a Mining License (ML) which is only granted if an applicant has discovered and proved that the discovered minerals deposit is viable and can be developed into a profitable mine.

Esegiel Xamsebis a locally registered company currently conducting prospecting activities and looking specifically at greenfield areas (Areas historically not known to have minerals potential or no detailed exploration has taken place in some these areas.

1.2 Regulatory Requirements

The proposed prospecting activities are listed in the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations, 2012 and cannot be undertaken without an Environmental Clearance Certificate (ECC).

The Proponent is required to have undertaken Environmental Assessment comprising this Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports for the proposed minerals prospecting activities in order to support the application for ECC.

In fulfilment of the environmental requirements, the Proponent appointed Centre for Geosciences Research cc as the Environmental Consultants led by Mulife Siyambango as the Environmental Assessment Practitioner in the preparation of the EIA and EMP Reports to support the application for ECC (Annex 2).

1.3 Location, Land Use, Infrastructure and Services

1.3.1 Location and Land Use

The EPL 7854. is located in the Karibib Constituency of the Erongo Region. The EPL 7854. covers a total area of 1595.3Ha over the portions of the following commercial farmland Etiro 50 (Fig. 1). The general local topography comprises central topographic high mountain areas trending in the northeast-southwest / east-west directions with topographic lower areas on either side.

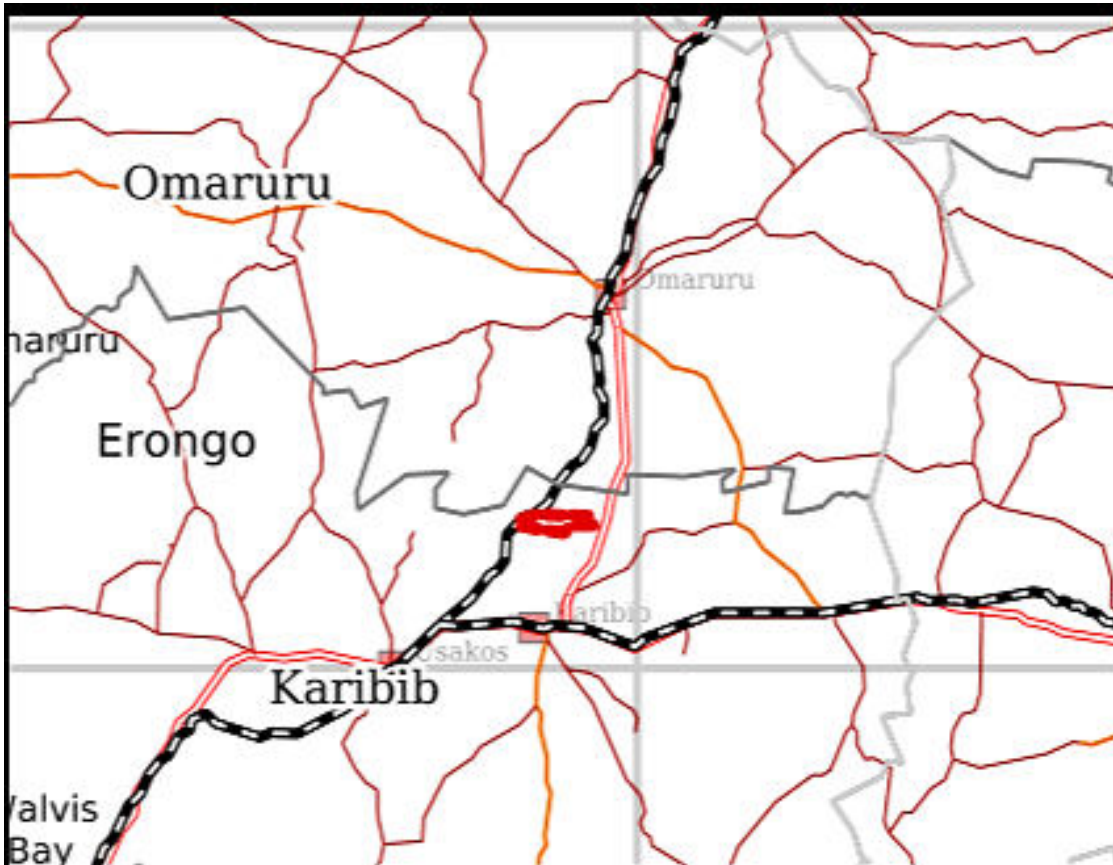


Fig 1, Showing the location of EPL 7854 north of Karibib, Erongo Region.

The landscape is dendritic in nature cultivated by several minor and major ephemeral river networks flowing into to the Swakop Ephemeral River. The Swakop Ephemeral River does not cut through the EPL area and is situated to the south of the license.

The EPL area is dominated by private commercial farmland Etiro. The land use of the area is agriculture including cattle, game, small stock, and other associated business activities.

Game farming linked to tourism and trophy hunting is common on private commercial farmland within the surrounding areas. Bush thickening or encroachment is viewed as an economic problem in the general area.

1.3.2 Supporting Infrastructure and Services

The EPL 7854. is situated north of Karibib at fram Etiro 50 on the C33 Road between Omaruru and Karibib. Karibib and Omaruru are the two (2) nearest towns to the EPL and are situated about 20 km to the north of Karibib.

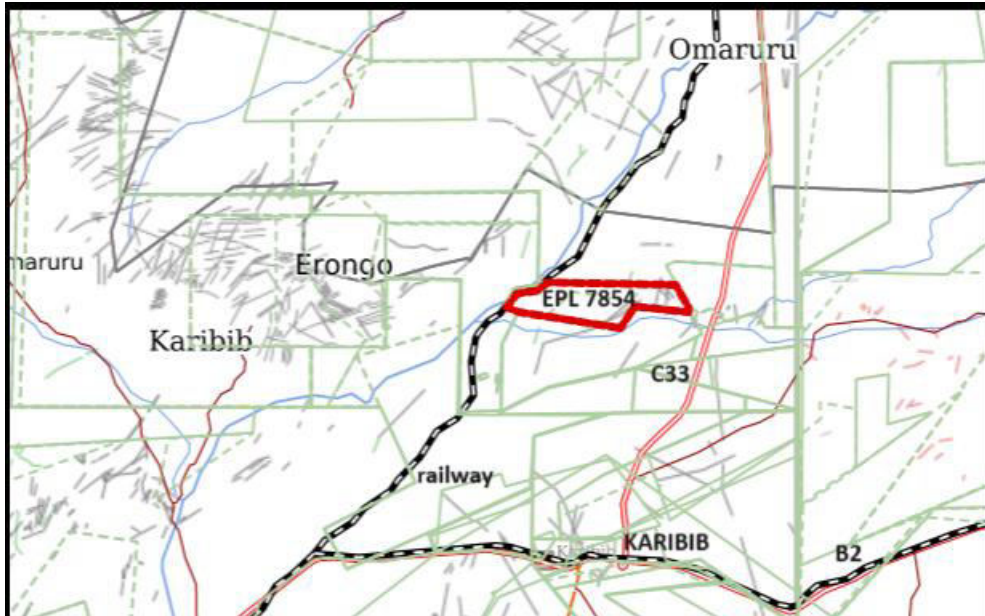


Fig 2, Showing the access route to EPL 7854

Access to the license area is through the B2 road from Okahandja to Karibib with the C33 from the B2 off-ramp towards Omaruru to the northern direction. Within the minerals license area, several private minor gravel farm roads and tracks already exist and are linked to the C33. The general EPL area has mobile services and electricity infrastructure.

The proposed exploration programme will not require major water and energy supply services. Exploration water supply especially for drilling will be obtained from the local boreholes or supplied by a tanker as may be required. Electricity supply will be provided by generators and solar as may be required for exploration purposes.

1.4 Project Motivation

The proposed exploration activities have limited to no local socioeconomic benefits. The only tangible benefits of the proposed exploration activities are mainly centred around the payment of the annual license rental fees to the central Government through the Ministry of Mines and Energy (MME).

The following is the summary of other likely proposed project benefits.

- ❖ Provisional contractual employment opportunities for the local communities during the minerals prospecting process that could take many years and only if potential minerals targets are discovered within the EPL area.
- ❖ Expansion of the subsurface knowledge-base: The exploration data to be generated will be highly useful in the search for future subsurface resources such as minerals, water, geothermal and general geoscience research, and development.
- ❖ Contribution to the subsurface knowledge-base that will promote the coexistence of subsurface operations with surface activities where compatible, and.
- ❖ Contribution to the development of local infrastructures as may be applicable especially in event that potential minerals targets requiring field-based studies to be conducted are identified.

1.5 Environmental Assessment Approach

1.5.1 Terms of Reference, Approach and Methodology

The environmental assessment process adopted for this project took into considerations the provisions the Environmental Management Act, 2007, (Act No. 7 of 2007) and all other applicable national laws and Regulations. The summary of the proposed activities, alternatives and key issues considered during the Environmental Assessment (EA) process are summarised in Table 1.1.

The first step in the environmental assessment process was the project screening followed by the preparation of the Background Information Document (BID) (Annex 3) used for project registration with the Environmental Commissioner and Interested and Affected Parties (I&APs) consultation process. The BID also provided the Terms of Reference (ToR) for the preparation of this EIA Report.

This EIA report undertaken for the proposed minerals explorations activities in the EPL 7854. was performed objectively and independently, with reasonable skill, care and diligence in accordance with professional standards and practices existing at the date of performance of the assessment and that the guidelines, methods and techniques used and applied in this study conformed to the national regulatory requirements, process and specifications in Namibia and in particular as required by Ministry

of Mines and Energy (MME), Ministry of Environment, Forestry, and Tourism (MEFT) and the client (Proponent). The preparation of the EIA / Scoping and EMP reports shall be undertaken in line with the January 2015 MEFT Environmental Assessment Reporting Guideline.

Table 1. Summary of the proposed activities, alternatives, and key issues considered during the Environmental Assessment (EA) process covering EIA/ Scoping and EMP phases.

PROPOSED PROJECT ACTIVITIES	ALTERNATIVES TO BE CONSIDERED	KEY ISSUES EVALUATED AND ASSESSED WITH ENVIRONMENTAL MANAGEMENT PLAN (EMP) / MITIGATION MEASURES DEVELOPED	
<p>(i) Initial desktop exploration activities (review of existing information and all previous activities in order identify any potential target/s in each EPL).</p> <p>(ii) Regional reconnaissance field-based activities such as regional mapping and sampling to identify and verify potential targeted areas based on the recommendations of the desktop work undertaken under (i) above.</p> <p>(iii) Initial local field-based activities such as widely spaced mapping, sampling, surveying and possible trenching and drilling to determine the viability of any delineated local target, and.</p> <p>(iv) Detailed local field-based activities such very detailed mapping, trenching, bulk sampling, surveying and detailed drilling to determine the feasibility of any delineated local target and conduct test mining activities.</p>	<p>(i) Location for Minerals Occurrence: A number of economic deposits are known to exist in different parts of Namibia and some have been explored by different companies over the years. The proponent intends to explore / prospect for possible economic minerals occurrence in the EPL area as licensed.</p> <p>(ii) Other Alternative Land Uses: Game farming, tourism and agriculture</p> <p>(iii) Ecosystem Function (What the ecosystem does).</p> <p>(iv) Ecosystem Services.</p> <p>(v) Use Values.</p> <p>(vi) Non-Use, or Passive Use.</p> <p>(vii) The No-Action Alternative</p> <p>(viii) No others alternatives were identified during the public consultation process and preparation of the EIA and EMP Reports</p>	Potential land use conflicts / opportunities for coexistence between proposed exploration and other existing land uses such as conservation, tourism and agriculture	
		Impacts on the Physical Environment	Natural Environment such as air, noise, water, dust etc.
			Built Environment such as existing houses, roads, transport systems, Buildings, energy and water and other supporting infrastructure
		Impacts on the Biological Environment	Socioeconomic, archaeological, and cultural impacts on the local societies and communities
		Impacts on the Biological Environment	Flora
			Fauna
			Habitat
			Ecosystem functions, services, use values and non-Use or passive use
No others issues were identified during the public consultation process and preparation of the EIA and EMP Reports			

1.5.2 Summary of the Steps

The EIA/ Scoping and EMP process used for this project took into considerations the provisions of the Environmental Impact Assessment (EIA) Regulations, 2012 and the Environmental Management Act (EMA), 2007, (Act No. 7 of 2007) as outlined in Fig. 3.

The environmental assessment steps undertaken or still to be taken are summarised as follows (Fig. 1.4):

- (i) Project screening process (**Undertaken in September 2023**).
- (ii) Preparation of the Background Information Document (BID) (**Undertaken in Sept 2023**).
- (iii) Preparation of the Public Notice to be published in the local newspapers as part of required public consultation process (**Undertaken in September 2023**).
- (iv) Opened the Stakeholder register (**Undertaken on the 5th October 2023**).
- (v) Published the first public notice in the Confidante Newspaper dated 22^h - 29th September 2023 inviting Interested and Affected Parties (I&APs) to participate in the environmental assessment. Public Notice to be published in New Era Newspaper dated 14^h - 21st September 2023

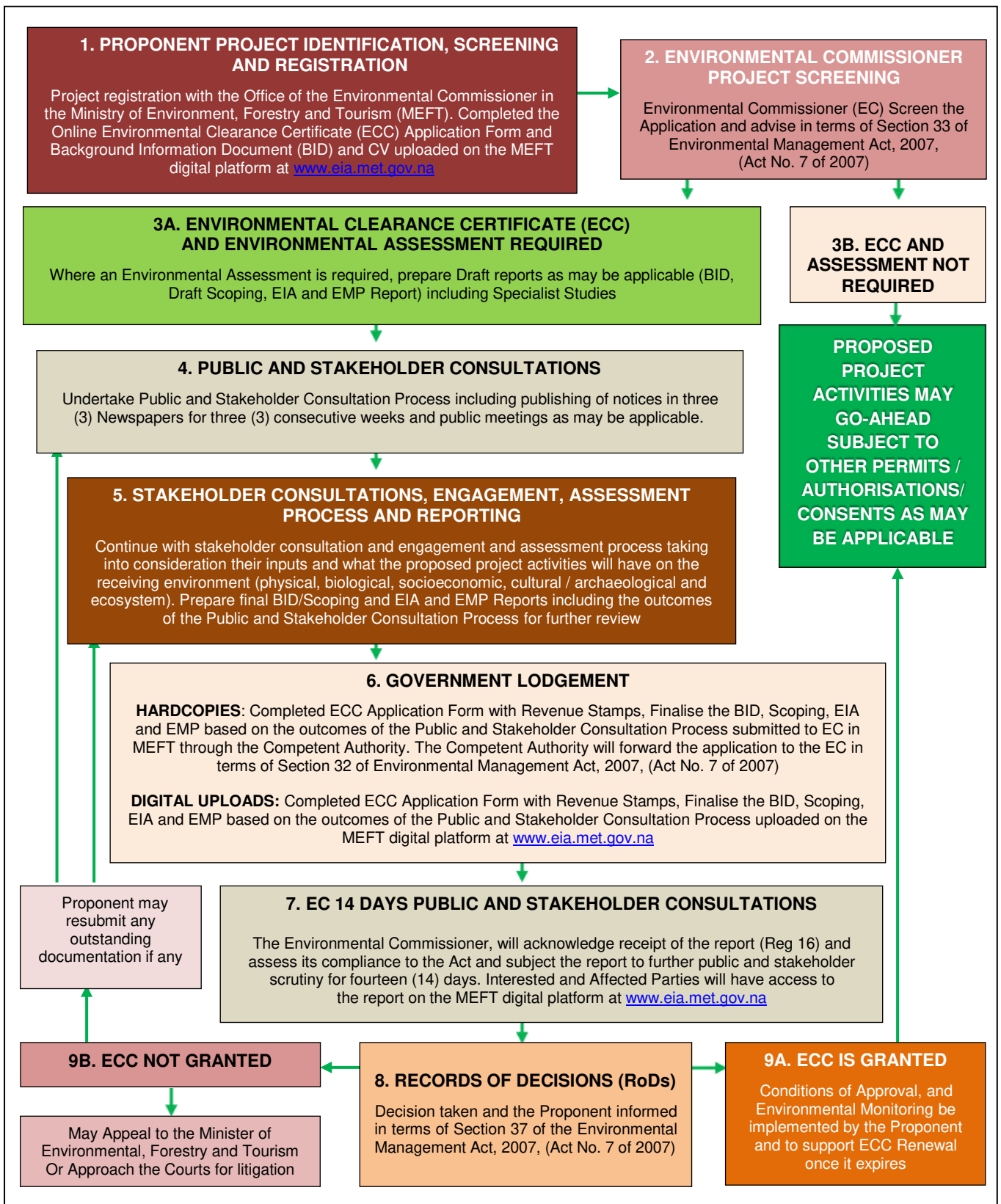


Figure 1: Schematic presentation of Namibia's Environmental Assessment Procedure.

1.5.3 Assumptions and Limitations

The following assumptions and limitations underpin the approach adopted, overall outcomes and recommendations of the environmental assessment process:

- ❖ The proposed activities as well as all the plans, maps, EPL area, line boundary / coordinates, and appropriate data sets received from the Proponent, project partners, regulators,

Competent Authorities, and specialist consultants are assumed to be current and valid at the time of conducting the studies and preparation of this report.

- ❖ The impact assessment outcomes, mitigation measures and recommendations to be provided in the EIA/ Scoping and EMP Reports are valid for the lifecycle of the proposed prospecting activities.
- ❖ A precautionary approach has been adopted in instances where baseline information and impact assessment guidelines were insufficient or unavailable or site-specific project activities were not yet available, and.
- ❖ Mandatory timeframes as provided for in the EIA Regulations No. 30 of 2012 and the EMA, 2007, (Act No. 7 of 2007) have been observed.

1.5.4 Structure of the Report

The following is the summary structure outline of this EIA report.

1. **Section 1: Background** covering the proposed project location with available infrastructure and services.
2. **Section 2: Project Description** covering the summary of the proposed project exploration activities.
3. **Section 3: Regulatory Framework** covering the proposed exploration with respect to relevant legislation, regulations and permitting requirements.
4. **Section 4: Receiving Environment** covering physical, biological and socioeconomic environments of the proposed project area.
5. **Section 5: Impact Assessment** covering the likely positive and negative impacts the proposed project activities are likely to have on the receiving environment.
6. **Section 6: Conclusions and Recommendations**- Summary of the findings and way forward.
7. **Section 7: Annexes**

2. DESCRIPTION OF THE EXPLORATION

2.1 General Overview

The overall aim of the proposed project activities (exploration / prospecting programme) is to search for potential economic minerals resources within the EPL area covering base and rare metals, dimension stones, industrial minerals, and precious metals.

The scope of the required field-based support and logistical activities will depend on the scale of proposed exploration activities to be undertaken.

The proposed exploration activities will be supported by existing tracks and campsites / farmstead as well as existing accommodation in the area. In the absence of existing tracks, the field team will create such new tracks with the permission of the land owner/s and depending on the scale of exploration.

In the absence of existing suitable campsite / farmstead, temporary camp will be setup at suitable locations within the EPL area in line with the EMP provisions. The size of the exploration camp will be of very limited footprints during the exploration phase but may be expanded for the test mining and mine development phases in an event of a discovery of economic minerals resources.

2.2 Initial Desktop Exploration Activities

The following is description of the proposed initial desktop exploration activities to be implemented by the Proponent as assessed in the EIA Report:

- (i) General evaluation of satellite, topographic, land tenure, accessibility, supporting infrastructures and socioeconomic environment data.
- (ii) Purchase and analysis of existing Government high resolution magnetic and radiometric geophysical data.
- (iii) Purchase and analysis of existing Government aerial hyperspectral, and.
- (iv) Data interpretation and delineating of potential targets for future reconnaissance regional field-based activities for delineated targets.

No field work is envisaged at this stage of the proposed exploration activities which can last between six (6) to twelve (12) months.

2.3 Regional Reconnaissance Field-Based Activities

The following is detailed outline of the proposed regional reconnaissance field-based exploration activities to be implemented by the Proponent as assessed in the EIA Report:

- (i) Regional geological, geochemical, topographical and remote sensing mapping and data analysis.
- (ii) Regional geochemical sampling aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken.
- (iii) Regional geological mapping aimed at identifying possible targeted based on the results of the initial exploration and regional geological, topographical and remote sensing mapping and analysis undertaken.
- (iv) Limited field-based support and logistical activities lasting between one (1) to two (2) days, and.
- (v) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets for future detailed site-specific exploration if the results are positive and supports further exploration of the delineated targets.

Scope and scale of the possible field work is very limited to visiting specific delineated localities to validated the recommendations of the initial desktop activities.

2.4 Initial Local Field-Based Activities

The following is detailed outline of the proposed initial local field-based exploration activities to be implemented by the Proponent as assessed in the EIA Report:

- (i) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during regional reconnaissance field activities.
- (ii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken.
- (iii) Ground geophysical survey (Subject to the positive outcomes of i and ii above).
- (iv) Possible Trenching (Subject to the outcomes of i - iii above).

- (v) Field-based support and logistical activities will be very limited focus on a site-specific area for a very short time (maximum five (5) days), and.
- (vi) Laboratory analysis of the samples collected and interpretation of the results and delineating of potential targets

Scope and scale of the possible field work is very limited working on specific delineated localities in order to assess the economic viable of the target/s.

2.5 Detailed Local Field-Based Activities

The following is detailed outline of the proposed detailed local field-based exploration activities to be implemented by the Proponent as assessed in the EIA Report if economic and viable targets are delineated within the EPL area:

- (i) Access preparation and related logistics to support activities.
- (ii) Local geochemical sampling aimed at verifying the prospectivity of the target/s delineated during the initial field-based activities.
- (iii) Local geological mapping aimed at identifying possible targeted based on the results of the regional geological and analysis undertaken, and.
- (iv) Ground geophysical survey, trenching, drilling and sampling (Subject to the positive outcomes of i and ii above).

Scope and scale of the possible field work is likely to be extensive over a localised specific delineated locality in order to assess the economic viable of the target/s.

2.6 Prefeasibility and Feasibility Studies

The following is detailed outline of the proposed prefeasibility and feasibility studies related exploration activities to be implemented by the Proponent as assessed in the EIA Report if economic and viable targets are delineated within the EPL area:

- (i) Detailed site-specific field-based support and logistical activities, surveys, detailed geological mapping.
- (ii) Detailed drilling and bulk sampling and testing for ore reserve calculations.
- (iii) Geotechnical studies for mine design.
- (iv) Mine planning and designs including all supporting infrastructures (water, energy and access) and test mining activities.
- (v) EIA and EMP to support the ECC for mining operations, and.
- (vi) Preparation of feasibility report and application for Mining License

Field-based support and logistical activities will be very extensive because the local field-based activities will be undertaken on a specific area for a very long time (up to one year or more in some instances). The activities will be supported by existing tracks and campsites / lodging facilities available in the area.

3. LEGISLATIVE FRAMEWORK

3.1 Overview

There are four sources of law in Namibia: (1) statutes (2) common law (3) customary law and (4) international law. These four kinds of law are explained in more detail in the other factsheets in this series. The Constitution is the supreme law of Namibia. All other laws must be in line with it. The most important legislative instruments and associated permits/licenses/authorisations/consents/compliances applicable to the ongoing exploration activities and possible test mining include: Minerals exploration and mining, environmental management, land rights, water, atmospheric pollution prevention and labour as well as other indirect laws linked to the accessory services of exploration activities.

3.2 Key Applicable Legislation

3.2.1 Minerals Exploration and Mining Legislation

The national legislation governing minerals prospecting and mining activities in Namibia fall under the Ministry of Mines and Energy (MME) as the Competent Authority (CA) responsible for granting authorisations. The Minerals (Prospecting and Mining) Act (No 33 of 1992) is the most important legal instrument governing minerals prospecting and mining activities in Namibia. A new Bill, to replace the Minerals (Prospecting and Mining) Act (No 33 of 1992) is being prepared and puts more emphasis on good environmental management practices, local participation in the mining industry and promotes value addition as prescribed in the Minerals Policy of 2003.

The Minerals (Prospecting and Mining) Act (No 33 of 1992) regulates reconnaissance, prospecting (exploration) and mining activities. The Mining Commissioner, appointed by the Minister, is responsible for implementing the provisions of this Act including reporting requirements, environmental obligations as well as the associated regulations such as the Health and Safety Regulations.

3.2.2 Environmental Management Legislation

The Environmental Assessment (EA) process in Namibia is governed by the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007) in the Ministry of Environment, Forestry and Tourism (MEFT). The objectives of the Act and the Regulations are, among others, to promote the sustainable management of the environment and the use of natural resources to provide for a process of assessment and control of activities which may have significant effects on the environment. The Minister of Environment, Forestry and Tourism (is authorised to list activities which may only be undertaken if an environmental clearance certificate has been issued by the environmental commissioner, which activities include those relating to exploration and mining operations.

In addition to the requirements for undertaking Environmental Assessment prior to the project implementation, the Environmental Management Act and the EIA Regulations also provide for

obligations of a license holder to provide for project rehabilitation and closure plan. In the regulations, the definition of “rehabilitation and closure plan” is a plan which describes the process of rehabilitation of an activity at any stage of that activity up to and including closure stage.

3.2.3 Water Legislation

Water Act 54 of 1906 under the Minister of Agriculture, Water and Land Reform (MAWLR) provides for the control, conservation and use of water for domestic, agricultural, urban and industrial purposes. In terms of Section 6, there is no right of ownership in public water and its control and use is regulated and provided for in the Act. In accordance with the Act, the ongoing exploration must ensure that mechanisms are implemented to prevent water pollution. Certain permits will also be required to abstract groundwater as well as for “water works”. The broad definition of water works will include the reservoir on site (as this is greater than 20,000m³), water treatment facilities and pipelines. Due to the water scarcity of the area, all water will be recycled (including domestic wastewater). The Act requires the license holder to have a wastewater discharge permit for discharge of effluent. The Water Act 54 of 1906 is due to be replaced by the Water Resources Management Act 24 of 2004 which is currently being revised. The Water Resource Management Act 2004 *provides for the management, development, protection, conservation and use of water resources.*

3.2.4 Atmospheric Pollution Prevention Legislation

The Atmospheric Pollution Prevention Ordinance, 11 of 1976 falling under the Ministry of Health and Social Services (MHSS) provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto. Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles.

3.2.5 Labour, Health and Safety Legislations

The Labour Act, 1992, Act No. 6 of 1992 as amended in the Labour Act, 2007 (Act No. 11 of 2007), falling under the Ministry of Labour, Industrial Relations and Employment Creation (MLIREC) refers to severance allowances for employees on termination of a contract of employment in certain circumstances and health, safety, and welfare of employees.

In terms of the Health Safety and Environment (HSE), the Labour Act, 2007 protects employees and every employer shall, among other things: provide a working environment that is safe, without risk to the health of employees, and that has adequate facilities and arrangements for the welfare of employees, provide and maintain plant, machinery and systems of work, and work processes, that are safe and without risk to the health of employees, and ensure that the use, handling, storage or transportation of hazardous materials or substances is safe and without risk to the health of employees.

All hazardous substances shall have clear exposure limits and the employer shall provide medical surveillance, first-aid and emergency arrangements as fit for the operation.

3.2.6 Other Applicable National Legislations

Other Important legislative instruments applicable to the proposed exploration operations in the EPL 7854. include the following (Table 3.1):

- ❖ Explosives Act 26 of 1906 (as amended in SA to April 1978) – Ministry of Home Affairs, Immigration, Safety and Security (MHAISS).
- ❖ National Heritage Act 27 of 2004 – Ministry of Education, Arts and Culture (MEAC).
- ❖ Petroleum Products and Energy Act 13 of 1990 – Ministry of Mines and Energy (MME).
- ❖ Nature Conservation Ordinance, No. 4 of 1975 – Ministry of Environment, Forestry and Tourism (MEFT).
- ❖ Forest Act 12 of 2001 – Ministry of Environment, Forestry and Tourism (MEFT).
- ❖ Hazardous Substances Ordinance 14 of 1974 – Ministry of Health and Social Services (MHSS), and.
- ❖ Public Health Act 36 of 1919 – Ministry of Health and Social Services (MHSS).

Table 2.summarises the key selected legislations relevant applicable to the proposed exploration in the EPL 7854..

Table 2: Legislation relevant to the ongoing exploration operations in the EPL 7854..

LAW	SUMMARY DESCRIPTION
<p>Constitution of the Republic of Namibia, 1990</p>	<p>The Constitution is the supreme law in Namibia, providing for the establishment of the main organs of state (the Executive, the Legislature, and the Judiciary) as well as guaranteeing various fundamental rights and freedoms. Provisions relating to the environment are contained in Chapter 11, article 95, which is entitled “promotion of the Welfare of the People”. This article states that the Republic of Namibia shall – “actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at ... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for all Namibians, both present and future. The Government shall provide measures against the dumping or recycling of foreign nuclear waste on Namibian territory.”</p>
<p>Minerals (Prospecting and Mining) Act, 1992 Ministry of Mines and Energy (MME)</p>	<p>The Minerals Act governs minerals prospecting and mining. The Act <i>provides for the reconnaissance, prospecting, and mining for, and disposal of, and the exercise of control over minerals in Namibia. and to provide for matters incidental thereto. A new Minerals Bills is currently under preparation.</i></p>
<p>Environmental Management Act (2007) - Ministry of Environment, Forestry and Tourism (MEFT)</p>	<p>The purpose of the Act is <i>to give effect to Article 95(l) and 91(c) of the Namibian Constitution by establishing general principles for the management of the environment and natural resources. to promote the co-ordinated and integrated management of the environment. to give statutory effect to Namibia’s Environmental Assessment Policy. to enable the Minister of Environment and Tourism to give effect to Namibia’s obligations under international conventions.</i> In terms of the legislation, it will be possible to exercise control over certain listed development activities and activities within defined sensitive areas. The listed activities in sensitive areas require an Environmental Assessment to be completed before a decision to permit development can be taken. The legislation describes the circumstances requiring Environmental Assessments. Activities listed as per the provisions of the Act will require Environmental Assessment unless the Ministry of Environment, Forestry and Tourism, in consultation with the relevant Competent Authority, determines otherwise and approves the exception.</p>
<p>Water Act 54 of 1906 Minister of Agriculture, Water and Land reform (MAWLR)</p>	<p>This Act provides for the control, conservation and use of water for domestic, agricultural, urban, and industrial purposes. In terms of Section 6, there is no right of ownership in public water and its control and use is regulated and provided for in the Act. In accordance with the Act, the proposed project must ensure that mechanisms are implemented to prevent water pollution. Certain permits will also be required to abstract groundwater (already obtained) as well as for “water works”. The broad definition of water works will include the reservoir on Site (as this is greater than 20,000m³), water treatment facilities and pipelines. Due to the water scarcity of the area, all water will be recycled (including domestic wastewater) and the Mine will be operated on a zero-discharge philosophy. It will, therefore, not be necessary to obtain permits for discharge of effluent.</p> <p>Section 23 of the Act requires environment rehabilitation after closure of the Mine, particularly, in this instance to obviate groundwater pollution and potential pollution resulting from run-off. This Act is due to be replaced by the Water Resources Management Act 24 of 2004.</p>
<p><i>Forest Act 12 of 2001</i> - Minister of Environment, Forestry and Tourism (MEFT)</p>	<p>The Act provide for the establishment of a Forestry Council and the appointment of certain officials. to consolidate the laws relating to the management and use of forests and forest produce. to provide for the protection of the environment and the control and management of forest fires.</p> <p>Under Part IV Protection of the environment, Section 22(1) of the Act, it is unlawful for any person to: cut, destroy, or remove:</p> <ul style="list-style-type: none"> (a) any vegetation which is on a sand dune or drifting sand or in a gully unless the cutting, destruction or removal is done for the purpose of stabilising the sand or gully or (b) any living tree, bush or shrub growing within 100m of a river, stream, or watercourse. <p>Should either of the above be unavoidable, it will be necessary to obtain a permit from the Ministry. Protected tree species as listed in the Regulations shall not be cut, destroyed, or removed.</p>

Hazardous Substance
Ordinance 14 of 1974

**Ministry of Health
and Social Services**

Provisions for hazardous waste are amended in this act as it provides "*for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances. to provide for the prohibition and control of the importation, sale, use, operation, application, modification, disposal or dumping of such substance. and to provide for matters connected therewith*"

Table 2.: Cont.

<p>Agricultural (Commercial) Land Reform Act, 1995, Act No.6 of 1995 Ministry of Agriculture, Water and Land Reform (MAWLR)</p>	<p>This Act provide for the acquisition of agricultural land by the State for the purposes of land reform and for the allocation of such land to Namibian citizens who do not own or otherwise have the use of any or of adequate agricultural land, and foremost to those Namibian citizens who have been socially, economically or educationally disadvantaged by past discriminatory laws or practices. to vest in the State a preferent right to purchase agricultural land for the purposes of the Act. to provide for the compulsory acquisition of certain agricultural land by the State for the purposes of the Act. to regulate the acquisition of agricultural land by foreign nationals. to establish a Lands Tribunal and determine its authority. and to provide for matters connected therewith.</p>
<p>Explosives Act 26 of 1906 (as amended in SA to April 1978) - Ministry Home Affairs, Immigration, Safety and Security (MHAISS)</p>	<p>All explosive magazines are to be registered with the Ministry of Mines and Energy as accessory works. In addition, the magazines must be licensed as required by Section 22. The quantity of explosives and the way it is stored must be approved by an inspector. The inspector has powers to enter the premises at any time to conduct inspections regarding the nature of explosive, quantity and the way it is stored. At closure, all explosives are to be disposed of accordingly.</p>
<p>Atmospheric Pollution Prevention Ordinance 11 of 1976. Ministry of Health and Social Services (MHSS)</p>	<p>This regulation sets out principles for <i>the prevention of the pollution of the atmosphere and for matters incidental thereto</i>. Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles.</p>
<p>The Nature Conservation Ordinance, Ordinance 4 of 1975, Ministry of Environment, Forestry and Tourism (MEFT)</p>	<p>During the Mine's activities, care must be taken to ensure that protected plant species and the eggs of protected and game bird species are not disturbed or destroyed. If such destruction or disturbance is inevitable, a permit must be obtained in this regard from the Minister of Environment, Forestry and Tourism. Should the Proponent operate a nursery to propagate indigenous plant species for rehabilitation purposes, a permit will be required. At this stage, however, it is envisaged that this type of activity will be contracted out to encourage small business development.</p>
<p>Labour Act, 1992, Act No. 6 of 1992 as amended in the Labour Act, 2007 (Act No. 11 of 2007) Ministry of Labour, Industrial Relations and Employment Creation (MLIREC)</p>	<p>The labour Act gives effect to the constitutional commitment of Article 95 (11), to promote and maintain the welfare of the people. This Act is aimed at establishing <i>a comprehensive labour law for all employees. to entrench fundamental labour rights and protections. to regulate basic terms and conditions of employment. to ensure the health, safety and welfare of employees</i> under which provisions are made in chapter 4. <i>Chapter 5 of the act improvises on the protection of employees from unfair labour practice.</i></p>
<p>Petroleum Products and Energy Act 13 of 1990 Ministry of Mines and Energy (MME)</p>	<p>Any consumer installation as envisaged in this Act must be licensed. Appropriate consumer installation certificate will need to be obtained from the Ministry for each fuel installation. The construction of the installation must be designed in such a manner as to prevent environmental contamination.</p> <p>Any certificate holder or other person in control of activities related to any petroleum product is obliged to report any major petroleum product spill (defined as a spill of more than 200l per spill) to the Minister. Such person is also obliged to take all steps as may be necessary in accordance with good petroleum industry practices to clean up the spill. Should this obligation not be met, the Minister is empowered to take steps to clean up the spill and to recover the costs thereof from the person.</p> <p>General conditions apply to all certificates issued. These include conditions relating to petroleum spills and the abandonment of the Site. The regulation further provides that the Minister may impose special conditions relating to the preparation and assessment of environmental assessments and the safe disposal of petroleum products.</p>
<p>National Heritage Act 27 of 2004 Ministry of Education, Arts and Culture (MEAC)</p>	<p>This Act provides provisions for the protection and conservation of places and objects of heritage significance and the registration of such places and objects. The proposed activities will ensure that if any archaeological or paleontological objects, as described in the Act, are found during the implementation of the activities, such a find shall be reported to the Ministry immediately. If necessary, the relevant permits must be obtained before disturbing or destroying any heritage</p>

3.3 Key Regulators / Competent Authorities

The environmental regulatory authorities responsible for environmental protection and management in relation to the proposed project including their role in regulating environmental protection are listed in Table 3.

Table 3: Government agencies regulating environmental protection in Namibia.

AGENCY	RESPONSIBILITY
Ministry of Mines and Energy (MME)	<p>The competent authority for minerals prospecting and mining activities in Namibia. Issues Exclusive prospecting License (EPL), Mining Licenses (ML) and Mining Claims (license) as well as all other minerals related permits for processing, trading, and export of minerals resources.</p> <p>In accordance with the provisions of the Petroleum Products and Energy Act 13 of 1990 (“the Petroleum Products Act”) and the regulations thereof, only 210L of diesel can be stored onsite without a license for own use. To store more than 210L of diesel for own use a site-specific Consumer Installation License is required. The application of a Consumer Installation License requires the applicant to have undertaken Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) to apply for Environmental Clearance Certificate (ECC) in accordance with the provisions of the Environmental Management Act, 2007, (Act No. 7 of 2007) and the EIA Regulations 30 of 2012.</p>
Ministry of Environment, Forestry and Tourism (MEFT)	<p>Issue of Environmental Clearance Certificate (ECC) based on the review and approval of the Environmental Assessments (EA) reports comprising Environmental Scoping, Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) prepared in accordance with the Environmental Management Act (2007) and the Environmental Impact Assessment Regulations, 2012.</p> <p>The National Botanical Research Institute’s (NBRI) mandate is to study the flora and vegetation of Namibia, to promote the understanding, conservation, and sustainable use of Namibia’s plants for the benefit of all. The Directorate of Forestry (DOF) is responsible for issuing of forestry permits with respect to harvest, transport, and export or market forest resources.</p>
Ministry of Agriculture, Water and Land Reform (MAWLR)	<p>The Directorate of Resource Management within the Department of Water Affairs (DWA) in the MAWLR is currently the lead agency responsible for management of surface and groundwater utilisation through the issuing of abstraction permits and waste water disposal permits. DWA is also the Government agency responsible for water quality monitoring and reporting.</p> <p>The Agricultural (Commercial) Land Reform Act, 1995, Act No.6 of 1995 governs commercial farmland owned by the State.</p>
Ministry of Home Affairs, Immigration, Safety and Security (MHAISS)	<p>The Explosive Department within the Namibian Police are responsible for licensing to purchase, store and use of explosive magazines for exploration related blasting that may be undertaken in the EPL 7854.</p>

3.4 International and Regional Treaties and Protocols

Article 144 of the Namibian Constitution provides for the enabling mechanism to ensure that all international treaties and protocols are ratified. All ratified treaties and protocols are enforceable within Namibia by the Namibian courts and these include the following:

- ❖ The Paris Agreement, 2016.
- ❖ Convention on Biological Diversity, 1992.
- ❖ Vienna Convention for the Protection of the Ozone Layer, 1985.
- ❖ Montreal Protocol on Substances that Deplete the Ozone Layer, 1987.
- ❖ United Nations Framework Convention on Climate Change, 1992.
- ❖ Kyoto Protocol on the Framework Convention on Climate Change, 1998.
- ❖ Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, 1989.
- ❖ World Heritage Convention, 1972.
- ❖ Convention to Combat Desertification, 1994. and
- ❖ Stockholm Convention of Persistent Organic Pollutants, 2001.
- ❖ Southern Africa Development Community (SADC) Protocol on Mining, and.
- ❖ Southern Africa Development Community (SADC) Protocol on Energy.

3.5 Standards and Guidelines

Industrial effluent likely to be generated by the proposed activities must comply with provisions of the Government Gazette No 217 dated 5 April 1962 (Table 3.3) while the drinking water quality comparative guideline values are shown in Table 3.4.

The only key missing components to the regulatory frameworks in Namibia are the standards, and guidelines with respect to gaseous, liquid, and solid emissions. However, in the absence of national gaseous, liquid, and solid emission limits for Namibia, the proposed project shall target the Multilateral Investment Guarantee Agency (MIGA) gaseous effluent emission level and liquid effluent emission levels (Table 4).

Noise abatement measures must target to achieve either the levels shown in Table 3.6 or a maximum increase in background levels of 3 dB (A) at the nearest receptor location off-site (MIGA guidelines).

Table 4: R553 Regional Standards for Industrial Effluent, in Government Gazette No 217 dated 5 April 1962.

Colour, odour and taste	The effluent shall contain no substance in concentrations capable of producing colour, odour or taste	
pH	Between 5.5 and 9.5	
Dissolved oxygen	At least 75% saturation	
Typical faecal coli	No typical faecal coli per 100 ml	
Temperature	Not to exceed 35 °C	
Chemical demand oxygen	Not to exceed 75 mg/l after applying a correction for chloride in the method	
Oxygen absorbed	Not to exceed 10 mg/l	
Total dissolved solids (TDS)	The TDS shall not have been increased by more than 500 mg/l above that of the intake water	
Suspended solids	Not to exceed 25 mg/l	
Sodium (Na)	The Na level shall not have been increased by more than 50 mg/l above that of the intake water	
Soap, oil and grease	Not to exceed 2.5 mg/l	
Other constituents	Residual chlorine	0,1 mg/l as Cl
	Free & saline ammonia	10 mg/l as N
	Arsenic	0,5 mg/l as As
	Boron	1,0 mg/l as B
	Hexavalent Cr	0,05 mg/l as Cr
	Total chromium	0,5 mg/l as Cr
	Copper	1,0 mg/l as Cu
	Phenolic compounds	0,1 mg/l as phenol
	Lead	1,0 mg/l as Pb
	Cyanide and related compounds	0,5 mg/l as CN
	Sulphides	1,0 mg/l as S
	Fluorine	1,0 mg/l as F
	Zinc	5,0 mg/l as Zn

Table 5: Comparison of selected guideline values for drinking water quality (after Department of Water Affairs, 2001).

Parameter and Expression of the results			WHO Guidelines for Drinking-Water Quality 2 nd edition 1993		Proposed Council Directive of 28 April 1995 (95/C/13-1/03) EEC		Council Directive of 15 July 1980 relating to the quality intended for human consumption 80/778/EEC		U.S. EPA Drinking water Standards and Health Advisories Table December 1995	Namibia, Department of Water Affairs Guidelines for the evaluation of drinking-water for human consumption with reference to chemical, physical and bacteriological quality July 1991			
			Guideline Value (GV)	Proposed Parameter Value	Guide Level (GL)	Maximum Admissible Concentration (MAC)	Maximum Contaminant Level (MCL)	Group A Excellent Quality	Group B Good Quality	Group C Low Health Risk	Group D Unsuitable		
Temperature	t	°C	-	-	12	25	-	-	-	-	-	-	
Hydrogen ion concentration	pH, 25° C	-	R <8.0	6.5 to 9.5	6.5 to 8.5	10	-	-	6.0 to 9.0	5.5 to 9.5	4.0 to 11.0	<4.0 to >11.0	
Electronic conductivity	EC, 25° C	mS/m	-	280	45	-	-	-	150	300	400	>400	
Total dissolved solids	TDS	mg/l	R 1000	-	-	1500	-	-	-	-	-	-	
Total Hardness	CaCO ₃	mg/l	-	-	-	-	-	-	300	650	1300	>1300	
Aluminium	Al	µg/l	R 200	200	50	200	S	50-200	150	500	1000	>1000	
Ammonia	NH ₄ ⁺	mg/l	R 1.5	0.5	0.05	0.5	-	-	1.5	2.5	5.0	>5.0	
	N	mg/l	1.0	-	0.04	0.4	-	-	1.0	2.0	4.0	>4.0	
Antimony	Sb	µg/l	P 5	3	-	10	C	6	50	100	200	>200	
Arsenic	As	µg/l	10	10	-	50	C	50	100	300	600	>600	
Barium	Ba	µg/l	P 700	-	100	-	C	2000	500	1000	2000	>2000	
Beryllium	Be	µg/l	-	-	-	-	C	4	2	5	10	>10	
Bismuth	Bi	µg/l	-	-	-	-	-	-	250	500	1000	>1000	
Boron	B	µg/l	300	300	1000	-	-	-	500	2000	4000	>4000	
Bromate	BrO ₃ ⁻	µg/l	-	10	-	-	P	10	-	-	-	-	
Bromine	Br	µg/l	-	-	-	-	-	-	1000	3000	6000	>6000	
Cadmium	Cd	µg/l	3	5	-	5	C	5	10	20	40	>40	
Calcium	Ca	mg/l	-	-	100	-	-	-	150	200	400	>400	
	CaCO ₃	mg/l	-	-	250	-	-	-	375	500	1000	>1000	
Cerium	Ce	µg/l	-	-	-	-	-	-	1000	2000	4000	>4000	
Chloride	Cl ⁻	mg/l	R 250	-	25	-	S	250	250	600	1200	>1200	
Chromium	Cr	µg/l	P 50	50	-	50	C	100	100	200	400	>400	
Cobalt	Co	µg/l	-	-	-	-	-	-	250	500	1000	>1000	
Copper after 12 hours in pipe	Cu	µg/l	P 2000	2	100	-	C	TT##	500	1000	2000	>2000	
		µg/l	-	-	3000 ¹	-	S	1000	-	-	-	-	
Cyanide	CN ⁻	µg/l	70	50	-	50	C	200	200	300	600	>600	
Fluoride	F ⁻	mg/l	1.5	1.5	-	at 8 to 12 °C: 1.5	C	4	1.5	2.0	3.0	>3.0	
		mg/l	-	-	-	at 25 to 30 °C: 0.7	P,S	2	-	-	-	-	
Gold	Au	µg/l	-	-	-	-	-	-	2	5	10	>10	
Hydrogen sulphide	H ₂ S	µg/l	R 50	-	-	undetectable	-	-	100	300	600	>600	
Iodine	I	µg/l	-	-	-	-	-	-	500	1000	2000	>2000	
Iron	Fe	µg/l	R 300	200	50	200	S	300	100	1000	2000	>2000	
Lead	Pb	µg/l	10	10	-	50	C	TT#	50	100	200	>200	
Lithium	Li	µg/l	-	-	-	-	-	-	2500	5000	10000	>10000	
Magnesium	Mg	mg/l	-	-	30	50	-	-	70	100	200	>200	
	CaCO ₃	mg/l	-	-	7	12	-	-	290	420	840	>840	
Manganese	Mn	µg/l	P 500	50	20	50	S	50	50	1000	2000	>2000	
Mercury	Hg	µg/l	1	1	-	1	C	2	5	10	20	>20	
Molybdenum	Mo	µg/l	70	-	-	-	-	-	50	100	200	>200	
Nickel	Ni	µg/l	20	20	-	50	-	-	250	500	1000	>1000	
Nitrate*	NO ₃ ⁻	mg/l	P 50	50	25	50	-	45	45	90	180	>180	
	N	mg/l	-	-	5	11	C	10	10	20	40	>40	
Nitrite*	NO ₂ ⁻	mg/l	3	0.1	-	0.1	-	3	-	-	-	-	
	N	mg/l	-	-	-	-	C	1	-	-	-	-	
Oxygen, dissolved	O ₂	% sat.	-	50	-	-	-	-	-	-	-	-	
Phosphorus	P ₂ O ₅	µg/l	-	-	400	5000	-	-	-	-	-	-	
	PO ₄ ³⁻	µg/l	-	-	300	3350	-	-	-	-	-	-	
Potassium	K	mg/l	-	-	10	12	-	-	200	400	800	>800	
Selenium	Se	µg/l	10	10	-	10	C	50	20	50	100	>100	
Silver	Ag	µg/l	-	-	-	10	S	100	20	50	100	>100	
Sodium	Na	mg/l	R 200	-	20	175	-	-	100	400	800	>800	
Sulphate	SO ₄ ²⁻	mg/l	R 250	250	25	250	S	250	200	600	1200	>1200	
Tellurium	Te	µg/l	-	-	-	-	-	-	2	5	10	>10	
Thallium	Tl	µg/l	-	-	-	-	C	2	5	10	20	>20	
Tin	Sn	µg/l	-	-	-	-	-	-	100	200	400	>400	
Titanium	Ti	µg/l	-	-	-	-	-	-	100	500	1000	>1000	
Tungsten	W	µg/l	-	-	-	-	-	-	100	500	1000	>1000	
Uranium	U	µg/l	-	-	-	-	P	20	1000	4000	8000	>8000	
Vanadium	V	µg/l	-	-	-	-	-	-	250	500	1000	>1000	
Zinc after 12 hours in pipe	Zn	µg/l	R 3000	-	100	-	S	5000	1000	5000	10000	>10000	
		µg/l	-	-	5000	-	-	-	-	-	-	-	

P: Provisional
R: May give reason to complaints from consumers

C: Current. P: Proposed. S: Secondary.
T#: Treatment technique in lieu of numeric MCL.
TT##: treatment technique triggered at action level of 1300 µg/l

Table 6: Liquid effluent emission levels (MIGA /IFC).

Pollutant	Max. Value
pH	6-9
Total suspended solids	50 mg/l
Total metals	10 mg/l
Phosphorous (P)	5 mg/l
Fluoride (F)	20 mg/l
Cadmium (Cd)	0.1 mg/l

Table 7: Noise emission levels (MIGA /IFC).

	Maximum Allowable Leq (hourly), in dB(A)	
	Day time (07:00 – 22:00)	Night time (22:00 – 07:00)
Receptor		
Residential, institutional, educational	55	45
Industrial, commercial	70	70

3.6 Recommendations on Permitting Requirements

It is hereby recommended that the Proponent shall follow the provisions of all relevant national legislations throughout the proposed project lifecycle and must obtain the following permits/authorisations as may be applicable / required as the proposed project develops:

- (i) Valid EPL 7854. as may be applicable from Department of Mines in the MME.
- (ii) Valid ECC from the Department of Environmental Affairs in the MEFT.
- (iii) The Proponent shall apply for a fresh water abstraction and waste water discharge permits from the Department of Water Affairs (DWA) in the MAWLR before drilling a water borehole and discharge wastewater into the environment respectively, and.
- (iv) All other permits as may be become applicable during the proposed exploration operations.

4. SUMMARY OF NATURAL ENVIRONMENT

4.1 Climate

The EPL 7854. is situated in west-central Namibia with daytime warm to hot temperatures throughout the year, while the nights are mild to cool in winter. The mean annual rainfall is highly variable and may range between 200 - 300 mm in some parts of the EPL Area. The distribution of rainfall is extremely seasonal with almost all the rain falling in summer - from November to April with occasional with mean annual gross evaporation of about 3300 mm. The local project area has the following three distinct seasons:

- ❖ A dry and relatively cool season from April to August with average daytime highs of 23°C and virtually no rainfall during this period.
- ❖ A hot and dry season from September to December with minimal and variable rainfall falling (<20 mm per month) and average daytime highs of 30°C, which regularly exceed 40°C, and.
- ❖ A hot and rainy season from January through to March with >50 mm per month falling during this period (although this is extremely variable) and average high temperatures of 29°C.

The project area does not have a weather station with reliable wind records. However, based on the regional wind patterns, the prevailing wind in the area seems to be dominated by winds from the north eastern and southwest quadrants. Locally, the situation may be different due various influences including topographic effects.

4.2 Topography

The general local topography comprises central topographic high mountain areas trending in the northeast-southwest direction with topographic lower areas on either side. The terrain around the EPL 7854. is rocky and rugged in nature with steep slopes characterising the mountainous sections whilst the foothills of the mountains are flat and gently undulating. The drainage of the area is dendritic in nature with ephemeral streams, often steeply incised, forming small early-stage tributaries of the flowing into the to the Swakop Ephemeral River which one of the major ephemeral rivers in western Namibia.

4.3 Vertebrate Fauna and Flora Diversity

4.3.1 Reptiles

According to Cunningham, (2017 and 2020), the high percentage of endemic reptile species (43%) associated with the rocky escarpment region of central western Namibia underscores the importance of this area without formal state protection. The most important species expected to occur in the general area are viewed as the tortoise *Stigmochelys pardalis*. pythons – *P. anchietae* and *P. natalensis* – *Varanus albigularis* and some of the endemic and little-known gecko species – e.g. *Pachydactylus* species. Tortoises, snakes and monitor lizards are routinely killed for food or as perceived threats. Other important species are those viewed as “rare” – i.e. *Rhinotyphlops lalandei*, *Mehelya vernayi* & *Afroedura africana* – although very little is known about these species. An important, albeit little known and understudied species occurring in the Usakos area, is the Namibian Wolf Snake (*Lycophidion namibianum*) (Haacke and Branch pers. com.). Indiscriminate killing of snakes is a threat to little known species. The most important habitat is the rocky outcrops (Cunningham, 2017 and 2020),

4.3.2 Amphibians

According to Cunningham, (2017 and 2020), of the seven species of amphibians that potentially could occur in the general area, 2 species are endemic species (*Poyntonophrynus hoeschi* and *Phrynomantis annectens*) (Griffin 1998b) and 1 species is classified as “near threatened” (*Pyxicephalus adspersus*) (Du Preez and Carruthers 2009) – i.e. high level (42.9%) of amphibians of conservation value from the general area. *Pyxicephalus adspersus* is also more common in northern Namibia where it faces severe anthropomorphic pressure (Griffin pers. com). With the exception of these important species and due to the fact that there is no open permanent surface water in the general area, amphibians are not viewed as very important in the dry western part of Namibia. The most important amphibian habitats are probably the ephemeral Khan and associated tributaries. fountains. farm reservoirs. ground dams and sewage work.

4.3.3 Mammals

According to Cunningham, (2017 and 2020), of the at least 88 species of mammals known and/or expected to occur in the general areas, 10 species (11.4%) as endemic while the Namibian legislation further classifies 5 species as vulnerable, 2 species as rare, 3 species as specially protected game, 9 species as protected game and 5 species as insufficiently known. The most important species from the general area are probably those classified as rare (e.g. *Cistugo seabrai* & *Atelerix frontalis angolae*) and vulnerable (e.g. *Galago moholi*, *Proteles cristatus*, *Hyaena brunnea*, *Acinonyx jubatus*, *Felis silvestris*, *Otocyon megalotis*, *Vulpes chama* & *Giraffa camelopardalis*) under the Namibian legislation and near threatened (e.g. *Eidolon helvum*, *Hipposideros commersoni*, *Hipposideros vittatus*, *Hyaena brunnea* & *Panthera pardus*) and vulnerable (e.g. *Acinonyx jubatus*, *Equus zebra hartmannae*) by the IUCN (IUCN 2016). The most important habitat is the rocky outcrops and major ephemeral rivers and associated

tributaries habitats (Cunningham, 2017 and 2020).

4.3.4 Avifauna

At least 216 bird species [mainly terrestrial “breeding residents”] occur and/or could occur in the general Karibib/Usakos/Omaruru areas at any time and include 12 of the 14 Namibian endemics (85.7% of all Namibian endemic species or 5.6% of all the species expected to occur in the area) (Cunningham, 2017 and 2020). According to Cunningham, (2017 and 2020), the most important endemic species known/expected to occur in the general area are viewed as Monteiro’s Hornbill (*Tockus monteiri*), Damara Hornbill (*Tockus damarensis*), *Ammomanopsis grayi* (Gray’s Lark), *Namibornis herero* (Herero Chat), *Eupodotis rueppellii* (Rüppell’s Korhaan) and *Poicephalus rueppellii* (Rüppell’s Parrot). All the birds listed as endangered, vulnerable and near threatened are also viewed as important. The most important habitat is the rocky outcrops and ephemeral rivers and associated tributaries riparian vegetation.

4.3.5 Trees and Shrubs

According to Cunningham, (2017 and 2020), at least 79 to 109 larger species of trees and shrubs are known and/or expected to occur in the general area of which of these 5 species are classified as endemic (4.6%) and 4 species as near endemic (3.7%), 24 species (22%) protected by Forestry laws, 5 species (4.6%) protected by the Nature Conservation Ordinance No. 4 of 1975 and 4 species (3.7%) classified as CITES Appendix II species. The most important species are viewed as *Cyphostemma bainesii* (endemic, Forestry#, NC), *Cyphostemma currorii* (Forestry#, NC), *Cyphostemma juttae* (endemic, Forestry#, NC), *Erythrina decora* (endemic, Forestry#), *Heteromorpha papillosa* (endemic) and *Manuleopsis dinteri* (endemic). These species are often associated with rocky outcrops indicating the importance of such geological features in the local areas (Cunningham, 2017 and 2020). The endemic grass – *Eragrostis omahekensis* – is viewed as the most important species potentially occurring in the general area. The most important habitat is the rocky outcrops, grassy plains and major ephemeral rivers and associated tributaries habitats (Cunningham, 2017 and 2020).

4.3.6 Other Flora Species

Aloes are protected throughout Namibia with 5 other aloe species, but which potentially occur in the general area, and also viewed as important are *Aloe asperifolia*, *A. dinteri*, *A. hereroensis*, *A. namibensis* and *A. zebrina* (Rothmann 2004).

Many endemic *Commiphora* species are found throughout Namibia with Steyn (2003) indicating that *Commiphora crenato-serrata* potentially also occurring in the general area.

Other species with commercial potential that could occur in the general area include *Harpagophytum procumbens* (Devil's claw) – harvested for medicinal purposes and often over-exploited – and *Citrullus lanatus* (Tsamma melon) which potentially has a huge economic benefit (Mendelsohn et al. 2002).

Lithops species – all protected (See Nature Conservation Ordinance No. 4 of 1975) – are also known to occur in the general area and often difficult to observe, especially during the dry season when their aboveground structures wither. At least two species of Lithops are known to occur in the Usakos area – *Lithops gracilidelineata* var. *gracilidelineata* and *L. werneri* – and are viewed as important (Cole and Cole 2005).

At least 64 species of ferns, of which 13 species being endemic, occur throughout Namibia. Ferns in the general area include at least 15 indigenous species (*Actiniopteris radiata*, *Asplenium cordatum*, *Cheilanthes dinteri*, *C. eckloniana*, *C. marlothii*, *C. parviloba*, *Marselia aegyptiaca*, *M. ephippiocarpa*, *M. farinosa*, *M. macrocarpa*, *M. nubica*, *M. unicornis*, *M. vera*, *Ophioglossum polyphyllum* & *Pellaea calomelanos*) ((Cunningham, 2017 and 2020). The general area is under collected with more species probably occurring in the general area than presented above.

The overall diversity of lichens is poorly known from Namibia, especially the coastal areas and statistics on endemism is even sparser (Craven 1998). More than 100 species are expected to occur in the Namib Desert with the majority being uniquely related to the coastal fog belt. Lichen diversity is related to air humidity and generally decreases inland from the Namibian coast (Schults and Rambold 2007). Off road driving is the biggest threat to these lichens which are often rare and unique to Namibia. To indicate how poorly known lichens are from Namibia, the recent publication by Schultz et al. (2009) indicating that 37 of the 39 lichen species collected during BIOTA surveys in the early/mid 2000's was new to science (i.e. new species), is a case in point. The most important lichen habitats are viewed as the Erongo Mountains. granite domes, other surrounding mountainous and rocky areas.

4.3.7 Habitats, Fauna and Flora Conclusions

According to Cunningham, (2017 and 2020), all developments have potential negative environmental consequences, identifying the most important faunal species including high risk habitats beforehand, coupled with environmentally acceptable mitigating factors, lessens the overall impact of such development. The following is the summary of the key habitats that have been identified:

- ❖ **Hills / topographically high areas:** Rocky areas generally have high biodiversity and consequently viewed as important habitat for all vertebrate fauna and flora. A hills area in the EPL has a high density of *Aloe litoralis* (protected) as well as *Ficus cordata* (protected), *Sterculia africana* (protected) and *Commiphora glaucescens* (near endemic) individuals.

- ❖ **Ephemeral drainage lines:** The various ephemeral drainage lines are important habitat to larger trees, especially *Acacia erioloba* (protected), *Euclea pseudobenus* (protected), *Faidherbia albida* (protected) and *Ziziphus mucronata* (protected), and.

- ❖ **Plains / Topographically low area:** Topographically low areas are also important habitats with *Acacia erioloba*, *Albizia anthelmintica* and *Boscia albitrunca* being found in these areas.

According to Cunningham, 2017 and 2020), vertebrate fauna species most likely to be adversely affected by the proposed exploration activities would be sedentary reptile species associated with local ridges/hills/mountainous areas– e.g. *Pedioplanis husabensis* and various *Pachydactylus* and *Rhoptropus* species. Important flora potentially adversely affected would be *Aloe asperifolia*, *A. namibensis*, various *Commiphora* species and *Lithops ruschiorum* var. *ruschiorum* and *L. gracilidelineata* var. *gracilidelineata* (Cunningham, 2017 and 2020).

There are various anthropomorphic activities throughout the general EPL area such as existing roads and tracks, farm infrastructure and previous exploration activities, etc., and the proposed developments would have a limited footprint and not be expected to affect the whole EPL area and associated unique amphibians, mammals, reptiles, and flora species negatively. The implementation and monitoring of the mitigation measures as detailed in the EMP Report is likely to lessen the extent of the likely negative impacts.

4.4 Socioeconomic Setting

4.4.1 Overview

The EPL 7854 falls within the Karibib Constituency, Erongo Region in Namibia. The total area of Karibib Constituency covers 14 535.8 km² amounting to 22.8 percent of the total area of Erongo Region (National Planning Commission, 2006, 2007 and 2012). Karibib Constituency is among the least densely populated area in Erongo Region with a population density of approximately 0.9 persons per km². Karibib Constituency is bordered by the Omaruru Constituency in the north, Daures Constituency in the northwest, Arandis Constituency in the southwest and Otjozondjupa and Khomas Regions to the east. The following is the summary of the key socioeconomic information associated with the EPL 7854. (National Planning Commission, 2006, 2007 and 2012):

- ❖ The study revealed a diverse socio-economic profile of inhabitants in the study area while portraying similarities in social setups and lifestyle characteristics.
- ❖ In terms of gender of head of household, the study indicated that across target communities 55.3% and 44.7% of households interviewed were headed by males and females, respectively.
- ❖ In line with the observation that majority (59.4%) of residents in the study area were relatively younger people in the age groups of 18–35 years (accounting for 26.1%) and 36–60 years (33.2%), it turned out that majority of the households (57.9%) were headed by unmarried (single) persons.
- ❖ Across target communities, the average size of the household was 5.15, and ranged between 3.6 and 6.3 persons – being slightly higher than the national average.
- ❖ In terms of household composition, Usakos and Karibib had relatively more female than male adults, accounting for 19.6% vs. 17.1% and 15.3% vs. 12.7%, respectively. In contrast, Karibib had more male than female adults in the ratio of 19.6% vs. 17.2% and 19.6% vs. 11.8%, respectively
- ❖ The same trend was noticed for male and female youths across the study areas, except for Karibib where male youths accounted for 10.7% and female youths 15.7%.
- ❖ Children accounted for 30.7% (Usakos) to 38.1% (Karibib), whereas pensioners
- ❖ Notably, overall, the larger segment of persons in households consisted of able bodied persons (59.4%) than children (35.5%) – indicating availability of the critical mass that could

be relied upon as labour for various household or community development activities and/or to be tapped into by potential employers, subject to skill-to-job matching.

- ❖ The study revealed that out of a total of 767 children, 89 (11.6%) were orphans. Within the study area, Usakos (with 20.5% of children in the household being orphans)
- ❖ As for disability, the study showed that 3% (65 persons) of the sampled population (n = 2,188) had some form of disability. This figure is slightly lower than the national average of 4.7%.
- ❖ In terms of education level of heads of households, one quarter of household heads in Karibib did not attend any formal education, followed by Usakos (21%), Namdeb (16%) and Karibib (2%). On the same trend, a further 24.4%, 19.5%, 18% and 9.3% of householdheads in Karibib and Usakos, respectively, ended their academic careers at primary school level.
- ❖ Attendance of secondary/high school by unemployed youth in target communities shows statistics that are higher than the national average. For example, on average 40.8% and 46.1% of unemployed female youth (UFY) and unemployed male youth (UMY) respectively, reached Grade 10. A further 34.8% and 34% of UFY and UMY respectively, reached Grade 12.
- ❖ In light of education levels as well as the diverse skills and experiences possessed by members of the target community, the study revealed that the target communities would have an abundance of low-skilled and unskilled labour – some of whom can be trained through e.g. on-the-job training, short-courses, and adult learning to assume various roles in different sectors and industries.
- ❖ Of relevance to Proponent is the proportion of residents (Karibib – 28%. Namdeb – 18%. and Usakos – 17%) who indicated possession of key experience in mining and/or related fields.
- ❖ For convenience and ease of access, over 90% of pre-primary and primary school learners attended schools in their respective towns/places. However, for Namdeb most pre-primary (61.5%) and primary school (92.3%) learners attended pre-primary and primary schools in Karibib because education institutions are non-existent at that settlement.
- ❖ As regards to Junior and Senior Secondary (High) School, a similar trend in which town-based (local) schools were generally preferred over schools in other places was observed.

- ❖ Of the children (all being in the school-going age) segment within households, 96.8% were enrolled in formal education system, being in concurrence with national average for that age group.
- ❖ On average 14.0%, 34.4%, 21.2%, 24.8% and 2.4% were in pre-primary, primary, junior secondary and senior secondary (high) schools respectively, mainly across the study area.
- ❖ The study revealed that income sources were diverse, with a strong bias on social grants which sustained 27.8% of the households.
- ❖ Further, study noted that a relatively high number of heads of household in Karibib (38%) had no income. Similarly, majority of other household members did not have incomes – Karibib(63.3%) and Usakos (46%).
- ❖ Nearly half (48.3%) of the sampled households had a combined monthly income in the range of NAD 0 to 999. This was followed by the income bracket of NAD 1,000 to 2,999 which represented the average of income of 34% of households.

4.4.2 Socioeconomic Conclusions and Recommendations

The development of this project will have some limited socioeconomic contributions to the local area or the Erongo Region. There will be no employment created during the exploration phase. However, if there is a discovery of economic minerals resources that could lead to the development of a viable mining project in area this could create limited job opportunities and bring added local benefits and contribute to the national economy through taxes, royalty, and direct investment. Workers from the project area will be staying in Karibib and Omaruru. The following is the summary of the key actions that the Proponent shall implement as part of enhancing the socioeconomic impacts of the proposed project:

- ❖ Stipulate that local residents should be employed for temporary unskilled/skilled and where possible in permanent unskilled/skilled positions as they would reinvest in the local economy. However, due to low skills levels of the local population, it is likely that the majority of skilled positions would be filled with people from outside the area.
- ❖ The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.
- ❖ Ensure that contractors adhere to Namibian Affirmative Action, Labour and Social Security, Health and Safety laws.
- ❖ The local authorities, community organisations and community leaders shall be informed on

final decisions regarding the project and the potential job opportunities for local people.

- ❖ Stipulate a preference for local contractors in the tender policy. The procurement of services and goods from local entrepreneurs and the engagement of local businesses people should be favoured and promoted provided that it is financially and practically feasible.
- ❖ Undertake a skills audit, develop a database of local businesses that qualify as potential service providers and invite them to the tender process.
- ❖ Scrutinise tender proposals to ensure that minimum wages were included in the costing.
- ❖ Project offers experience and on job skills development, particularly for low or semi-skilled workers. This would raise the workers experience and skills to secure jobs in future.
- ❖ Promising employees could be identified and training and skills development programme could be initiated.
- ❖ The project could organise business partnerships with local entrepreneurs or small SMEs.
- ❖ Service providers to provide opportunities for skills transfer, and.
- ❖ Provide opportunities for employees re-skilling beyond the project closure.

4.5 Ground Components

4.5.1 Geology

The EPL 7854. falls within the Central Zone of the Damara Sequence which underlies most of Namibia. The oldest rocks within the Central Zone are the pre-Damara basement that consists of gneiss and granite lithologies found in different parts of the zone (Miller, 1992). According to Miller, (1983a), the sequence was deposited during successive phases of rifting, spreading, subduction and continental collision. Much of the basal succession (Nosib Group), laid down in or marginal to intracontinental rifts, consists of quartzite, arkose, conglomerate, phyllite, calc-silicate, subordinate, limestone, and evaporitic rocks. Local alkaline ignimbrites with associated subvolcanic intrusions ranging from 840 to 720 million years in age also form part of the regional geology (Miller, 1992).

According to Miller, (1992), widespread carbonate deposition followed and overlapped far beyond early rift shoulders (Kudis, Ugab and basal Khomas Subgroups). interbedded mica and graphitic schist, quartzite (some ferruginous), massflow deposits, iron-formation and local within-plate basic lava point to fairly variable depositional conditions south of a stable platform where only carbonates with very minor clastics occur (Otavi Group). Near the southern margin of the orogen, deep-water fans, facies equivalents of the carbonates were deposited on either side of a Southern Zone ocean separating Kalahari and Congo Cratons (Auas and Tinkas Formations). Thick schistose metagreywacke and metapelite (Kuseb Formation) overlie the above rocks.

The lithostratigraphy of the Damara Sequence in the Central Zone (CZ) in which the EPL 7854. falls has been reviewed and significantly revised by Badenhorst (1987), who has also correlated the stratigraphy across the Omaruru Lineament. The stratigraphy of the CZ taken from Steven (1993) as slightly modified after Badenhorst, (1987) and (1988) is given in Table 7.

Table 7: Partial Lithostratigraphy of the Damara Sequence in Central Namibia (Karibib-Swakopmund Area) (Source: Venmyn Deloitte, 2014).

GROUP	SUB-GROUP	FORMATION	THICKNESS (m)	LITHOLOGICAL DESCRIPTION
Swakop	Khomas	Kuseb	3,000	Biotite-rich quartzo-feldspathic schist, biotite-garnet-cordierite schist, minor amphibolite schist, quartzite, calc-silicate rock and marble.
		Karibib	700	Marble, biotite schist, quartz schist and calc-silicate rock.
		Chuoss	700	Diamictite, pebble- and boulder-bearing schist and minor quartzite
	<i>Discordance</i>			
	Ugab	Rössing	200	Very variable marble, quartzite, conglomerate, biotite schist, biotite cordierite schist and gneiss, aluminous gneiss, biotite-hornblende schist and calc-silicate schist.
<i>Unconformity or conformable transition</i>				

Nosib		Khan	1,100	Various gneisses, quartzite, schist, conglomerate, minor marble, amphibolite and calc-silicate rock.
		Etusis	3,500	Layered light-red to greyish-brown quartzites with high feldspar content. In-between para-gneisses, biotite schists and conglomerates occur.

4.5.2 Water Sources

Groundwater as well as surface water (only during the rainy season) from ephemeral river channels is the sources of water supply in the area as well as much of the Erongo Region. According to the Department of Water Affairs, (2001), the Erongo Region and in particular the Usakos and the EPL area generally has a low groundwater potential. The area with aquifer potential, more or less reflects the rainfall distribution, decreasing westwards. Knowledge of the aquifers in this area is sparse, due to the low number of boreholes and few on groundwater.

Recharge from rainfall is an important parameter determining the groundwater potential, but the degree of metamorphism affects the groundwater potential too. The groundwater potential of rocks decreases, as the degree of metamorphism increases. Crystalline rocks normally exhibit a very low tendency to store water, typical of the pegmatite zones and the alternating bands within the banded dolomitic marble and biotite-quartz schist found within the project area. The groundwater potential of these rock units is generally low, to locally moderate.

Possible targets for water resources in this area are mainly the carbonate terrain and fractured zones and faults that outcrop on the surface without impermeable infillings. But the success rate and yields for these rock types are generally low. The area along major ephemeral rivers may be more promising due to well developed fractures and faults that give rise to good recharge potential during the rainy season.

4.5.3 Evaluation of Water Vulnerability

Vulnerability assessment of surface water covered possible runoff, the presence of source factors and major flow routes such as major high order discontinuities (Table 7), ephemeral river channels, valleys and gullies as pathways and the presence of surface water body as a target. The groundwater assessments covered hydraulic properties and thickness of the unsaturated and saturated zones derived from geological and hydrogeological data.

The assessment of the unsaturated characteristics was based on the ability for source factors to influence the system through known pathway factors such as discontinuities. The combined effects of unsaturated and saturated flow probabilities were used as indicator for groundwater vulnerability. However, groundwater or surface water will only be vulnerable to contamination if the following three (3) component are all present at the same time and at a site-specific area within the EPL:

- (i) Contaminant sources resulting from proposed exploration programme.
- (ii) Potential pathways for contaminant migration such as major high order discontinuities (Table 7), ephemeral river channels, valleys and gullies, and.
- (iii) Targets (economic water resources) present within the project area.

Overall, the limited local groundwater resources found in the area form part of the poorly developed metamorphic rocks based confined and unconfined aquifer system that is moderately vulnerable to any sources of pollution. During the rainy season, surface water bodies can be found along the local ephemeral river system. This surface water often recharges the local groundwater resources along the faults, solution holes, and other discontinuities along the ephemeral rivers in the general surrounding EPL area.

Therefore, surface water in the local EPL area is more vulnerable to pollution sources associated with some of the proposed local field-based detailed prospecting / exploration activities such as drilling and trenching as well as supporting activities such as campsite and discharge of liquid and solid waste. It is important that all polluting activities must not be placed or undertaken in areas with high order discontinuities, valleys, or gullies systems in the area. Discharge of solid or liquid waste into a public stream is prohibited.

4.6 Archaeology

4.6.1 Regional Archaeological Setting

Modern humans and their ancestors have lived in Namibia for more than one million years, and there are fossil remains of lineal hominin ancestors as early as the Miocene Epoch. Namibia has a relatively complete sequence covering the mid-Pleistocene to Recent Holocene period, represented by thousands of archaeological sites mainly concentrated in the central highlands, escarpment, and Namib Desert (Kinahan, 2017).

The Recent Holocene archaeological sequence in Namibia, i.e., the last 5 000 years, is of particular importance because it provides the background evidence for the development and recent history of the indigenous peoples of Namibia before the advent of written historical records during the colonial era. Many archaeological sites from this period are of great significance to the understanding of Namibian history, and some are of global importance.

4.6.2 Local Archaeological Setting

In summary, the three area surveys previously undertaken in the vicinity of the EPL 7854. provide new evidence relating to the last one thousand years, with little indication of earlier occupation. The pre-colonial evidence points to impermanent settlement by groups of probably Khoe pastoralists (Kinahan, 2017). These people formed part of a regional-scale network with links to the Atlantic coast and inland sites where copper was produced.

According to Kinahan, (2017) the large assemblage of ceramic vessels from Habis represent an important addition to the regional archaeological picture. Evidence from the early colonial period relates to mining in the Karibib area and a combination of trade, missionary activity, and wagon repair in the Karibib area. Both Karibib and Omaruru are centres of historical importance and have several National Monument sites recognized under the National Heritage Act.

4.6.3 Archaeological Desk Assessment

Based on the desktop report prepared for this EPL and the previous field surveys conducted in the general area (Kinahan, 2017), it is safe to assume that EPL 7854. May possibly have some sites of archaeological significance and that these will probably date to the late pre-colonial and early colonial periods.

Early colonial remains are expected to be relatively that those related to historical mining activity.

The Proponent must not disturb major natural cavities that may be unearthed because they could hold some highly significant historical or cultural sites that would require detailed documentation and possibly mitigation measures to be adopted in the event of encroachment by mining activity.

4.6.4 Archaeological Conclusions and Recommendations

According to the archaeological assessment that was undertaken in the general area, the EPL 7854. area probably has archaeological potential, although no archaeological sites have been recorded so far from within the EPL area itself. The following is the summary of the expectations:

- (i) A likelihood of Holocene age archaeological sites.
- (ii) A likelihood of late precolonial settlement sites throughout the entire tenement, especially in the vicinity of springs and seepages, and.
- (iii) A high likelihood of early colonial settlement remains relating to the historical occupation of Karibib and Omaruru.

The following are the key recommended actions related to the protection of potential archaeological resources that may be found within the EPL 7854. area:

- (i) Contractors working on the site should be made aware that under the National Heritage Act any items protected under the definition of heritage found during development should be reported to the National Heritage Council.
- (ii) The Chance Finds procedure as outlined in the EMP must always be implemented, and.
- (iii) Detailed field survey should be carried out when the licence holder has identified specific targets for exploration, and before invasive exploration commences.

4.7 Public Consultations and Engagement

4.7.1 Overview

Public consultation and engagement process are part of the environmental assessment process for this project. According to the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 and the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007), a person conducting a public consultation process must give notice to all Interested and Affected Parties (I&AP) of the application which is subjected to public consultation.

The EIA Regulations clearly state that potential interested, and affected parties must be provided with a reasonable opportunity (14 days) to comment on the application under Section 21(6) of the EIA Regulations.

In line with the provisions of the regulations, the public notices were published in the local newspapers during the months of September 2023 and a stakeholder register as shown in Table 8 was opened on the 30th September 2023. Public Notice were published in two (2) newspaper for (2) weeks (14 day) period for public consultation.

The closing date for registration and submission of written objections, comments, inputs to the environmental assessment process was Friday 20th October 2023.

5. IMPACT ASSESSMENT AND RESULTS

5.1 Impact Assessment Procedure

The Environmental Assessment process that has been undertaken with respect to the proposed exploration programme for the EPL No. 7854. has been conducted in accordance with the provisions of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007).

5.2 Alternatives and Ecosystem Assessments

The following alternatives have been considered:

- (i) **EPL Location:** Several potential economic minerals deposits are known to exist in the general area and linked to the regional geology of the EPL area. The Proponent intend to explore / prospect for all the licensed minerals groups likely to be associated with the regional and local geology. The minerals occurrences are site-specific and related to the regional and local geology of a specific area to which there are no alternatives sites to consider with respect to the license location. The only other alternative is the no-action option (no exploration activities are implemented in a specific area).

(ii) **The No-Action Alternative** - A comparative assessment of the environmental impacts of the 'no-action' alternative (a future in which the proposed exploration activities do not take place) has been undertaken. An assessment of the environmental impacts of a future, in which the proposed exploration and possible discovery of economic minerals resources does not take place, may be good for the receiving environment because there will be no negative environmental impacts due to the proposed minerals exploration or possible mining operation that may take place in the EPL area. The environmental benefits will include:

- ❖ No negative impacts because of no mineral exploration taking place, and.
- ❖ No potential future mining related negative environmental impact on the receiving environment in an event of a discovery of economic minerals resources within the EPL area.

However, it is important to understand that even if the proposed exploration activities do not take place, to which the likely negative environmental impacts are likely to be low and localised, Climate Change and the other current and future land uses such as agriculture and tourism will still have some negative impacts on the receiving environment. The likely negative environmental impacts of the other current and future land use that may still happen in the absence of the proposed minerals exploration activities includes:

- ❖ Land degradation due to drought.
- ❖ Overgrazing / over stocking beyond the land carrying capacity.
- ❖ Wildfires and droughts.
- ❖ Poor land management practices, and.
- ❖ Erosion and overgrazing.

Kraals, pit latrines and chemical leaching from agricultures are some of the major point sources of water pollution in many parts of Namibia. Furthermore, it is also important to understand what benefits might be lost if the proposed exploration activities do not take place. Key losses that may never be realised if the proposed project activities do not go ahead include: Loss of potential added value to the unknown underground minerals

and future exploration, direct and indirect contracts and employment opportunities, foreign direct investments, license rental fees, royalties, and various other taxes payable to the Government.

- (iii) **Other Alternative Land Uses:** The EPL area fall within the commercial agricultural land uses area dominated by small stock farming. Minerals exploration activities are well known land uses options in Namibia. Due to the limited scope of the proposed exploration and the implementation of the EMP, it is likely that the proposed exploration can coexist with the current land uses especially if key and other sensitive land uses such as core conservation, tourism or archaeological resources areas falling within the EPL area are excluded from the proposed minerals exploration activities in consultation with the land owners.
- (iv) **Potential Land Use Conflicts:** (iv) Considering the current land use practices (agriculture and tourism) as well as potential other land uses including minerals exploration, it is likely that the proposed exploration activities in the general area can still co-exist with the existing and potential future land use options. Where other key sensitive land uses such as core conservation, tourism, or archaeological resources areas falling within the EPL boundary are identified, these environmental sensitive areas shall be excluded from the proposed minerals exploration activities. Much more detailed assessments of any likely visual and other socioeconomic impacts will need to be included in the EIA that must be undertaken as part of the prefeasibility and feasibility studies if economic minerals resources are discovered in the general surrounding areas. The use of thematic mapping and delineation of various land use zones for specific uses such as agriculture, conservation, exploration or tourism etc, within the EPL area will greatly improve the multiple land use practices and promote coexistence for all the possible land use options.
- (v) **Ecosystem Function (What the Ecosystem Does):** There are wildlife habitats, carbon cycling or the trapping of nutrients and characterised by the physical, chemical, and biological processes or attributes that contribute to the self-maintenance of an ecosystem in this area. Although the proposed exploration activities are unlikely to affect the ecosystem function due to the limited scope and the fact that the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked, where possible the key and core conservation, tourism, or archaeological resources areas falling within the EPL area shall be excluded from the proposed minerals exploration activities in consultation with the land owners.
- (vi) **Ecosystem Services:** Food chain, harvesting of animals or plants, and the provision of clean water or scenic views are some of the local ecosystem services associated with the EPL area. Although the proposed exploration activities are unlikely to affect the ecosystem services due to the limited and likely localised scope and the fact that the ecosystem of this

EPL area is part of the larger local and regional ecosystems which are all interlinked. In consultation with the land owners and where other key sensitive land uses such as core conservation, tourism, or archaeological resources areas falling within the EPL boundary are identified, these environmental sensitive areas shall be excluded from the proposed minerals exploration activities.

- (vii) **Use Values:** The EPL area has direct use for other land uses such as agriculture, conservation, and tourism as well as indirect include watching a television show about the general area and its wildlife, food chain linkages that sustains the complex life within this area and bequest value for future generations to enjoy. The proposed exploration activities will not destroy the current use values due to the limited scope of the proposed activities as well as the adherence to the provisions of the EMP report, and.
- (viii) **Non-Use or Passive Use:** The EPL area has an existence value that is not linked to the direct use / benefits to current or future generations. The proposed exploration activities will not affect ecosystem current or future none or passive uses due to the limited scope of the proposed activities that will leave much of the EPL area untouched because the ecosystem of this EPL area is part of the larger local and regional ecosystems which are all interlinked.

5.3 Key Issues Considered in the Assessment Process

5.3.1 Sources of Impacts (Proposed Project Activities)

The ongoing exploration activities being undertaken in the EPL 7854. and as assessed in this EIA Report with mitigation measures provided in the EMP Report are as follows:

- (i) Initial desktop exploration activities (no field-work undertaken).
- (ii) Regional reconnaissance field-based mapping and sampling activities (Subject to the positive results of (i).
- (iii) Initial local field-based mapping and sampling activities (Subject to the positive results of (i) and (ii) above),
- (iv) Detailed local field-based activities such as local geological mapping, geochemical mapping and sampling, trenching and drilling of closely spaced boreholes and bulk sampling (Subject to the positive results of (i) - (iii) above), and.
- (v) Prefeasibility and feasibility studies (Subject to the positive results of (i) - (iv) above).

5.3.2 Summary of Receptors Likely to be Negative Impacted

Based on the finding of this EIA Report, the following is the summary of the key environmental receptors that are may be negatively impacted by the proposed activities:

- ❖ **Physical environment:** Water quality, physical infrastructure and resources, air quality, noise and dust, landscape and topography, soil quality and, Climate change influences.
- ❖ **Biological environment:** Habitat, protected areas and resources, flora, fauna, and ecosystem functions, services, use values and non-use or passive use, and.
- ❖ **Socioeconomic, cultural, and archaeological environment:** Local, regional, and national socioeconomic settings, agriculture, conservation, eco-tourism, and recreation cultural, biological and archaeological resources.

5.4 Impact Assessment Methodology

5.4.1 Impact Definition

In this EIA Report, a natural and/or human environmental impact is defined as: “Change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation’s environmental aspects.” (ISO 14001).

All proposed project activities (routine and non-routine) were considered during the Scoping, EIA and EMP Phases in terms of their potential to:

- ❖ Interact with the existing environment (physical, biological and social elements), and.
- ❖ Breach relevant national legislation, relevant international legislation, standards and guidelines, and corporate environmental policy and management systems.

Where a project activity and receptor were considered to have the potential to interact, the impact has been defined and ranked according to its significance. Table 8 provides the definition of different categories of impacts identified and used in this report. This EIA Report has assessed the potential impacts resulting from routine Project activities, assuming that the Project activities that may cause an impact that will occur but the impact itself will be dependent on the likelihood (Probability) (Table 8).

reduce any negative significant impacts on the receiving environment as the results of the project activities. The assessment therefore, has focussed on the measures aimed at preventing the occurrence of an impact as well as mitigation measures that may be employed. The overall impact severity has been categorised using a semi-quantitative subjective scale as shown in Table 9 for sensitivity of receptors, Table 10 for magnitude, Table 11 for duration, Table 12 for extent and Table 13 showing probability.

Table 8: Definition of impact categories used in this report.

Rating	Definition of Rating
Status of the Impact – in terms of meeting the objective of maintaining a healthy environment.	
Positive	The impact benefits the environment
Negative	The impact results in a cost to the environment
Neutral	The impact has no effect
Probability – the likelihood of the impact occurring	
Negligible	Possibility negligible
Improbable	Possibility very low
Probable	Distinct possibility
Highly Probable	Most likely
Definite	Impact will occur regardless of preventive measures
Degree of confidence in predictions – in terms of basing the assessment on available information	
Low	Assessment based on extrapolated data
Medium	Information base available but lacking
High	Information base comparatively reliable
Extent – the area over which the impact will be experienced	
Site specific	Confined to within < 1 km of the project
Local	Confined to the study area or within 5 km of the project
Regional	Confined to the region, i.e. > 5 km but < National
National	Nationally
International	Beyond the borders of Namibia
Duration – the time frame for which the impact will be experienced	
Very short	Less than 2 years
Short-term	2 to 5 years
Medium-term	6 to 15 years
Long-term	More than 15 years
Permanent	Generations
Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment	
Negligible	Natural functions and processes are negligibly altered due to adaptation by the receptor(s) to high natural environmental variability
Mild	Natural functions and processes continue albeit in a modified way that does not appear to have a significant disruptive effect (i.e. changes are temporary)
Moderate	Natural functions and processes continue albeit in a modified way that does appear to have a noticeable disruptive effect (i.e. changes are permanent)
Severe	Natural functions or processes are altered to the extent that they temporarily cease resulting in severe deterioration of the impacted environment
Very Severe	Natural functions or processes permanently cease or are completely disrupted

Table 9: Definitions used for determining the sensitivity of receptors.

SENSITIVITY RATING		CRITERIA
1	Negligible	The receptor or resource is resistant to change or is of little environmental value.
2	Low	The receptor or resource is tolerant of change without detriment to its character, is of low environmental or social value, or is of local importance.
3	Medium	The receptor or resource has low capacity to absorb change without fundamentally altering its present character, is of high environmental or social value, or is of national importance
4	High	The receptor or resource has moderate capacity to absorb change without significantly altering its present character, has some environmental or social value, or is of district/regional importance.

5	Very High	The receptor or resource has little or no capacity to absorb change without fundamentally altering its present character, is of very high environmental or social value, or is of international importance.
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Table 10: Scored on a scale from 0 to 5 for impact magnitude.

SCALE (-) or (+)		DESCRIPTION
0		no observable effect
1		low effect
2		tolerable effect
3		medium high effect
4		high effect
5		very high effect (devastation)

Table 11: Scored time period (duration) over which the impact is expected to last.

SCALE (-) or (+)		DESCRIPTION
T		Temporary
P		Permanent

Table 12: Scored geographical extent of the induced change.

SCALE (-) or (+)		DESCRIPTION
L		limited impact on location
O		impact of importance for municipality.
R		impact of regional character
N		impact of national character
M		impact of cross-border character

5.4.3 Likelihood (Probability) of Occurrence

The likelihood (probability) of the pre-identified events occurring has been ascribed using a qualitative scale of probability categories (in increasing order of likelihood) as shown in Table 13. Likelihood is estimated on the basis of experience and/ or evidence that such an outcome has previously occurred. Impacts resulting from routine/planned events (i.e., normal operations) are classified under category (E).

Table 13: Summary of the qualitative scale of probability categories (in increasing order of likelihood).

SCALE (-) or (+)		DESCRIPTION
A		Extremely unlikely (e.g. never heard of in the industry)
B		Unlikely (e.g. heard of in the industry but considered unlikely)

C		Low likelihood (egg such incidents/impacts have occurred but are uncommon)
D		Medium likelihood (e.g. such incidents/impacts occur several times per year within the industry)
E		High likelihood (e.g. such incidents/impacts occurs several times per year at each location where such works are undertaken)

5.4.4 Project Activities Summary of Impacts Results

The results of the impacts assessment and evaluation has adopted a matrix framework like the Leopold matrix. Assessment results of the magnitude, duration, extent, and probability of the potential impacts due to the proposed project activities interacting with the receiving environment are presented in form of a matrix table as shown in Tables above.

The overall severity of potential environmental impacts of the proposed project activities on the receiving environment will be of low magnitude, temporally duration, localised extent (Table 12) and low probability of occurrence (Table 13) due to the limited scope of the proposed activities and the use of step progression approach in advancing exploration.

The step progressional approach will allow the Proponent to the results of exploration success and the implementation of the next stage of exploration will be subject to the positive outcomes of previous activities as graded (Tables 9-13).

It is important to note that the assessment of the likely impacts as shown in Tables 9-13, have been considered without the implementation of mitigation measures detailed in the EMP Report.

The need for implementation of the appropriate mitigation measures as presented in the separate EMP Report have be determined on the results of the impact assessment (Tables 10-14) and the significant impacts as detailed in Tables 12-14.

5.5 Evaluation of Significant Impacts

5.5.1 Overview

The significance of each impact has been determined by assessing the impact severity against the likelihood (probability) of the impact occurring as summarised in the impact significance assessment matrix provided in Table 18.

5.5.2 Significance Criteria

Significance criteria for negative/adverse impacts (i.e., relative ranking of importance) are defined in Table 18. It is important to note that impacts have been considered without the implementation of mitigation measures. The need for and appropriate mitigation measures as presented in the EMP report have been determined on the basis of the impact assessment presented in this report.

Table 18: Scored impact significance criteria.

IMPACT SEVERITY [Magnitude, Duration, Extent, Probability]	RECEPTOR CHARACTERISTICS (SENSITIVITY)				
	Very High (5)	High (4)	Medium (3)	Low (2)	Negligible (1)
Very High (5)	Major [5/5]	Major [4/5]	Moderate [3/5]	Moderate [2/5]	Minor [1/5]
High (4)	Major [5/4]	Major [4/4]	Moderate [3/4]	Moderate [2/4]	Minor [1/4]
Medium (3)	Major [5/3]	Moderate [4/3]	Moderate [3/3]	Minor [2/3]	None [1/3]
Low (2)	Moderate [5/2]	Moderate [4/2]	Minor [3/2]	None [2/2]	None [1/2]
Negligible (1)	Minor [5/1]	Minor [4/1]	None [3/1]	None [2/1]	None [1/1]

5.5.3 Assessment Likely Significant Impacts

The assessment of significant impacts depended upon the degree to which the proposed project activities are likely to result in unwanted consequences on the receptor covering physical and biological environments (Table 9). Overall, the assessment of significant impacts has focused on the ecosystem-based approach that considers potential impacts to the ecosystem. The main key sources of impacts that have been used in the determination of significant impacts posed by the proposed minerals exploration comprised activities. Each of the main areas of impact have been identified and assessed as follows:

- ❖ Positive Impacts are classified under a single category. they are then evaluated qualitatively with a view to their enhancement, if practical.
- ❖ Negligible or Low Impacts will require little or no additional management or mitigation measures (on the basis that the magnitude of the impact is sufficiently small, or that the receptor is of low sensitivity).
- ❖ Medium or High Impacts require the adoption of management or mitigation measures.
- ❖ High Impacts always require further management or mitigation measures to limit or reduce the impact to an acceptable level.

Overall, the results of the significant impact assessment matrix for the proposed minerals exploration activities on the physical and biological environments are shown in Tables 19.

5.6 Assessment of Overall Impacts

5.6.1 Summary of the Results of the Impact Assessment

In accordance with Tables 14 - 18, the following is the summary of the overall likely negative and significant impacts of the proposed exploration activities on the receiving environment (physical, biological, and socioeconomic environments) without and with mitigations:

- (i) Initial desktop exploration activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[1/1]** (Table 19). Except for the socioeconomic components which carry a limited **(+)** at national level in terms of fess payable to the Government, the rest of the likely impacts are negative **(-)**.
- (ii) Regional reconnaissance field-based activities: Overall likely negative impact on the receiving environment will be negligible with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[1/1]**. Some field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible **[1/1]** (Table 19). Except for the socioeconomic components which carry a limited **(+)** at national level in terms of fess payable to the Government, all the other likely impacts are negative **(-)**.
- (iii) Initial local field-based activities: Initial field-based activities will have localised low impacts with low probability of occurrence without mitigations and negligible with mitigations. Overall significant impacts will be negligible **[2/2]**. All desktop related activities and laboratory assessments will have negligible impacts with extremely unlikely probability of occurrence without mitigations. Overall significant impacts will be negligible **[2/2]** (Table 19). Except for the socioeconomic components which carry a limited **(+)** at national level in terms of fess payable to the Government, all the other likely impacts are negative **(-)**.
- (iv) Detailed local field-based activities: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised low impacts with mitigations. Overall significant impacts will be medium **[2/2]** without mitigations and low with mitigations (Table 19). Except for the socioeconomic components which carry a limited **(+)** at national level in terms of fess payable to the Government, all the other likely impacts are negative **(-)**, and.
- (v) Prefeasibility and feasibility studies to be implemented on a site-specific area if the local field-based studies prove positive: Overall likely negative impact on the receiving environment will be high and localised impacts without mitigations and localised medium impacts with mitigations. Overall significant impacts will be high **[3/3]** without mitigations and low with mitigations for bulk sampling, test mining and field logistics (Table 19). Except for the socioeconomic components which carry a limited **(+)** at national level in terms of fess payable to the Government, all the other likely impacts are negative **(-)**.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Esegiel Xamseb(**the Proponent**) intends to undertake exploration activities in the Exclusive Prospecting Licence (EPL) No. 7854. covering base and rare metals, industrial minerals, and precious metals minerals groups. The Proponent intends to conduct exploration / prospecting activities starting with desktop studies and aerial surveys, followed by regional field-based reconnaissance work and if the results are positive, implement detailed site-specific field-based activities over key site-specific localities using techniques such as geological mapping, geophysical surveys, trenching, drilling and sampling for laboratory tests as may be applicable and subject to the delineation of potential exploration target/s within the EPL area.

The overall severity of potential environmental impacts of the proposed project activities on the receiving environment (physical, biological, socioeconomic environments and ecosystem functions, services, use and non-use values or passive uses) will be of low magnitude, temporally duration, localised extent, and low probability of occurrence.

6.2 Recommendations

It is hereby recommended that the proposed exploration activities be issued with an Environmental Clearance Certificate (ECC). The proponent shall take into consideration the following key requirements for implementing the proposed exploration programme:

- (i) An EMP report shall be prepared.
- (ii) Mitigation measures shall be implemented as detailed EMP report.
- (iii) The proponent negotiate an Access Agreement with the land owner/s.
- (iv) In consultation with the land owners and where possible and if key and core conservation, tourism or archaeological resources areas are identified within the EPL area, such areas shall be excluded from the proposed minerals exploration activities.
- (v) The Proponent shall adhere to all the provisions of the EMP and conditions of the Access Agreement to be entered between the proponent and the land owner/s in line with all applicable national regulations.
- (vi) Before entering any private property such as a private farm, the proponent must give advance notices and obtain permission to always access such private property from the land owners, and.

- (vii) Where possible, and if water is found during the detailed exploration boreholes drilling operations, the proponent shall support other land users in the area in terms of access to freshwater supply for both human consumption, wildlife and agricultural support as may be requested by the local community / land owners/s. The abstraction of the groundwater resources shall include water levels monitoring, sampling, and quality testing on a bi-annual basis, and that the affected landowners must have access to the results of the water monitoring analyses as part of the ongoing stakeholder disclosure requirements on shared water resources as maybe applicable.

6.3 Summary ToR for Test Mining and Mining Stages

In an even that economic minerals resources are discovered within the EPL 7854. area and could lead to the development of mining project, a new Environmental Clearance Certificate (ECC) for mining will be required. The application for ECC being supported by this EIA report only covers the exploration phase. A separate field-based and site-specific Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) reports supported by specialist studies as maybe applicable must be prepared to support the application for the new ECC for mining operations.

The EIA and EMP studies shall form part of the prefeasibility and feasibility study with respect to the test mining or possible mining operations. The site-specific EIA and EMP shall cover the area identified to have potential economic minerals resources as well as all areas to be used for the development of supporting infrastructure such as pit / shaft area/s, waste rock, tailings dump, access, office blocks, water, and energy infrastructure support areas (water, energy, and road / access). In addition to the Terms of Reference (ToR) to be developed during the Environmental Scoping study phase for the test mining / mining stages, the following field-based and site-specific specialist studies shall be undertaken as part of the EIA and EMP for possible test mining or mining operations in an event of a discovery of economic minerals resources and possible development of a mining project:

- (i) Groundwater studies including modelling as maybe applicable.
- (ii) Field-based flora and fauna diversity.
- (iii) Noise and Sound modelling linked to engineering studies.
- (iv) Socioeconomic assessment, and.
- (v) Others as may be identified / recommended by the stakeholders/ land owners/ Environmental Commissioner or specialists.

The aims and objectives of the Environmental Assessment (EA) covering EIA and EMP to be implemented as part of the feasibility study if variable resources are discovered are:

- (i) To assess all the likely positive and negative short- and long-term impacts on the receiving environment (physical, biological, and socioeconomic environments) at local (EPL Area), regional, national (Namibia) and Global levels using appropriate assessment guidelines, methods and techniques covering the complete project lifecycle. The EIA and EMP to be undertaken shall be performed with reasonable skill, care and diligence in accordance with professional standards and practices existing at the date of performance of the assessment and that the guidelines, methods and techniques shall conform to the national regulatory requirements, process and specifications in Namibia and in particular as required by the Ministry of Mines and Energy, Ministry of Environment, Forestry, and Tourism and Ministry of Agriculture, Water Affairs and Forestry, and.
- (ii) The development of appropriate mitigation measures that will enhance the positive impacts and reduce the likely negative influences of the negative impacts identified or anticipated. Such mitigation measures shall be contained in a detailed EMP report covering the entire project lifecycle.

7. REFERENCES

1. FURTHER GENERAL READING

Department of Affairs and Forestry, 2001. Groundwater in Namibia: An explanation to the hydrogeological map. *MAWRD*, Windhoek, 1, 128 pp.

Directorate of Environmental Affairs, 2002. Atlas of Namibia Project. Ministry of Environment and Tourism, Windhoek, <http://www.met.gov.na>

Diehl, M., 1992. Lithium, Beryllium and Caesium. In: Mineral Resources of Namibia, pp. 6.15-1 – 6.15-18. Namibia: Geological Survey of Namibia. Special Publication.

Geological Survey of Namibia, 1999. The Simplified Geological Map of Namibia, Windhoek.

Miller, R.McG. 2008. The geology of Namibia. Geological Survey, Ministry of Mines and Energy, Windhoek, Vol. 3.

Miller, R. McG., 1992. Stratigraphy. *The mineral resource of Namibia, Geological Survey of Namibia, MME*, Windhoek, 1.2 .1 -1.2.13.

Miller, R. McG., 1983a. The Pan – African Damara Orogen of S.W.A. / Namibia, Special Publication of the Geological Society of South Africa, **11**, 431 - 515.

Miller, R. McG., 1983b. Economic implications of plate tectonic models of the Damara Orogen, Special Publication of the Geological Society of South Africa, **11**, 115 -138.

Roesener H and Schreuder C.P (1992) Iron. In: Mineral Resources of Namibia, pp. 2.4-1–2.4-14. Namibia: Geological Survey of Namibia. Special Publication.

South African National Standards (SANS), 2005. South African National Standard, Ambient Air Quality – Limits for Common Pollutants. SANS 1929:2005. Standards South Africa, Pretoria.

The Chamber of Mines of Namibia, 2012. Annual review, Windhoek, Namibia.

United States Department of State, 2017. Country Reports on Human Rights Practices for 2017, Bureau of Democracy, Human Rights and Labour.

Venmyn Deloitte, 2014. Independent Competent Persons' Report on the Material Mineral Assets of Unimin African Resources Limited (Unimin), SR1.1A(i), Final Draft Report, Johannesburg, South Africa. Komen, L. n.d. The Owls of Namibia – Identification and General Information. NARREC, Windhoek.

Maclean, G.L. 1985. Robert's birds of southern Africa. John Voelcker Bird Book Fund.

Maggs, G. 1998. Plant diversity in Namibia. In: Barnard, P. (ed.). Biological diversity in Namibia: a country study. Windhoek: Namibian National Biodiversity Task Force.

Mannheimer, C. and Curtis, B. (eds) 2009. Le Roux and Müller's field guide to the trees and shrubs of Namibia. Macmillan Education Namibia, Windhoek.

Marais, J. 1992. A complete guide to the snakes of southern Africa. Southern Book Publishers, Witwatersrand University Press, Johannesburg, RSA.

Mendelsohn, J., Jarvis, A., Roberts, A. and Robertson, T. 2002. Atlas of Namibia. A portrait of the land and its people. David Philip Publishers, Cape Town, RSA.

Monadjem, A., Taylor, P.J., F.P.D. Cotterill and M.C. Schoeman. 2010. Bats of southern and central ANNEXES

- 1. Copy of the EPL**
- 2. CV of the EAP**
- 3. Background Information Document (BID)**
- 4. Copy of Public Consultation Materials / Newspapers adverts**